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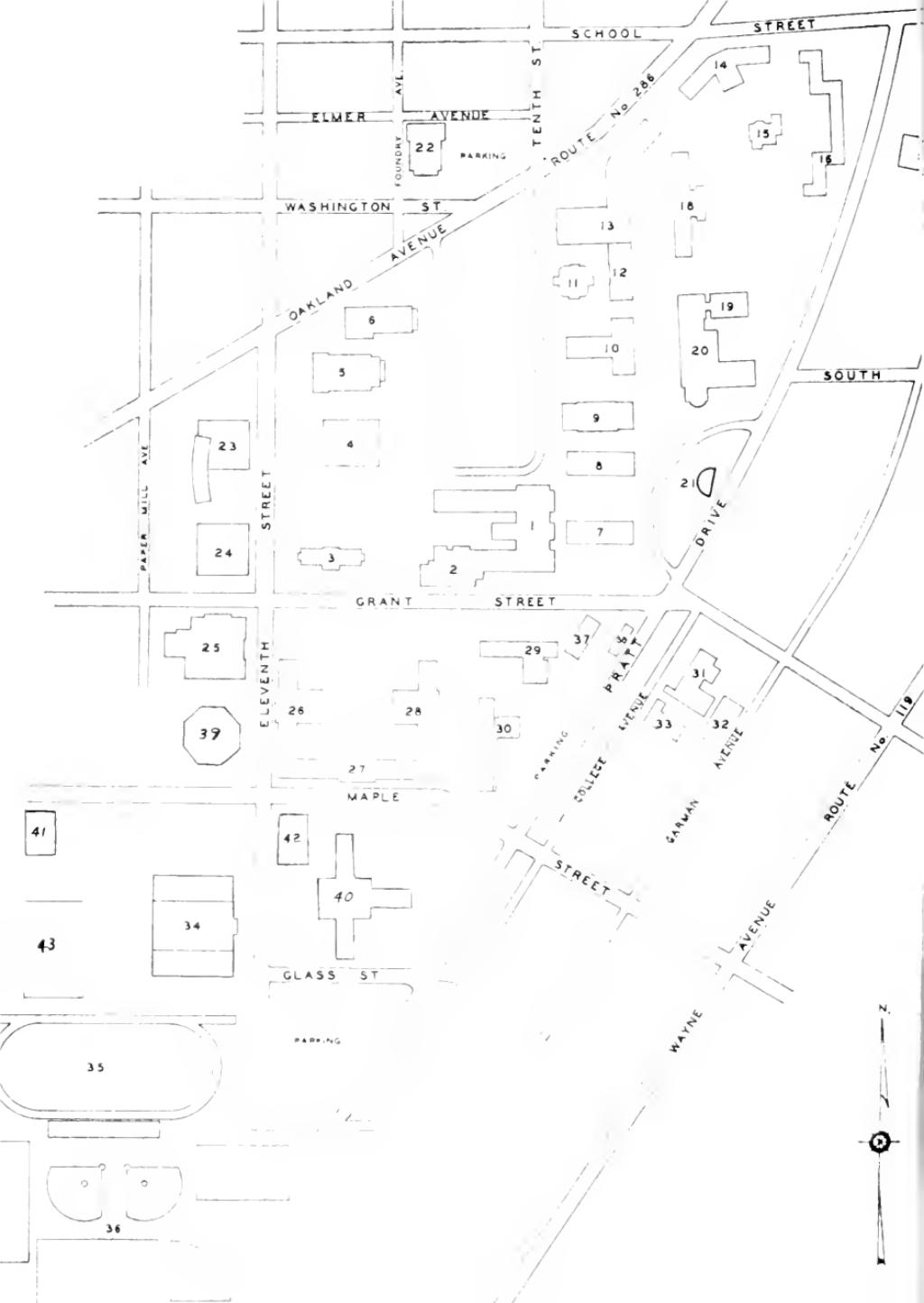
1967 Summer Sessions

Academic Year 1967-68

**The
Graduate School
Annual Bulletin**

**INDIANA UNIVERSITY
OF PENNSYLVANIA**

INDIANA, PENNSYLVANIA



KEY TO BUILDINGS

1. John Sutton Hall
2. Thomas Sutton Hall
3. Clark Hall
4. Stabley Library
5. Fisher Auditorium
6. Waller Gymnasium
7. Ackerman Hall
8. Classroom Hall (proposed)
9. McElhaney Hall
10. Leonard Hall
11. Wilson Hall
12. Walsh Hall
13. Weyandt Hall
14. Elkin Hall
15. Art Ed. Annex
16. Whitmyre Hall
17. Student Union
18. Gordon Hall
19. Special Education Building
20. Keith School
21. Flagstone Theater
22. Uhler Hall
23. Cogswell Hall
24. Classroom Hall (proposed)
25. Foster Dining Hall
26. Mack Hall
27. Stewart Hall
28. Turnbull Hall
29. Wahr Hall
30. Langham Hall
31. Boiler Plant
32. Maintenance Bldg. (proposed)
33. Shop Building
34. Memorial Hall (Field House)
35. Miller Stadium
36. Athletic Fields
37. Military Hall
38. Greenhouse
39. Learning & Research Center (proposed)
40. Men's Dormitories (proposed)
41. Military Hall (proposed)
42. Health Center (proposed)
43. Tennis Courts

THE GRADUATE SCHOOL
INDIANA UNIVERSITY OF PENNSYLVANIA
INDIANA, PENNSYLVANIA 15701

Tuition Fees -- At a recent meeting of the Indiana University of Pennsylvania Board of Trustees adjustments were made in tuition fees for both graduate and undergraduate students, according to Dr. Willis E. Pratt, President of the University. Effective June 1, 1967, the Board lowered the fees for all graduate course work to \$14.00 per semester hour of credit. A fee of \$50.00 per semester hour will be assessed for private vocal or instrumental music lessons.

For the 1967 spring semester the tuition fees will remain the same as for the past several years.

During the summer sessions the activity-service fee is \$2.50 for the pre- and post-sessions and \$7.00 for the main session. In the regular semester this fee amounts to \$7.50 for part-time students (seven hours or less) and \$20.00 for full-time students (eight hours or more).

The Graduate School

BULLETIN

VOLUME 72

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NUMBER 6

INDIANA UNIVERSITY OF PENNSYLVANIA
INDIANA, PENNSYLVANIA

Graduate Catalog Number 1967 - 1968



THIS UNIVERSITY IS ACCREDITED BY THE NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION FOR THE PREPARATION OF ELEMENTARY AND SECONDARY TEACHERS AND TEACHERS IN THE SPECIAL FIELDS OF ART, BUSINESS, HOME ECONOMICS, MUSIC, DRIVER AND SAFETY EDUCATION, DENTAL HYGIENISTS, AND PUBLIC SCHOOL NURSES WITH THE MASTER'S DEGREE AS THE HIGHEST DEGREE APPROVED, AND BY THE MIDDLE STATES ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS.

Issued Annually by the Trustees of the Indiana University of Pennsylvania, Indiana, Pennsylvania. Entered as second-class matter, June 30, 1913, at the Post Office in Indiana, Pennsylvania under Act of Congress, August 24, 1912.

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CALENDAR

Spring Semester, 1967

December 15—Tentative class schedule for spring semester must be submitted by this date.

January 1—Students who plan to take graduate work during the spring semester must have filed an application for graduate study on or before this date.

January 25—Payment of fees for all graduate students in spring semester must be completed by this date.

January 31—Spring semester evening classes begin.

February 4—Spring semester Saturday classes begin.

March 1—Prospective May graduates must have filed an application for graduation on or before this date.

April 1—Final draft of research project or thesis due for May graduates.

March 24—Easter vacation begins.

April 1—Easter vacation ends.

May 20—Classes terminate.

May 28—Commencement.

May 28—Semester ends.

Pre-Session, 1967

May 15—Tentative class schedule for pre-session must be submitted by this date.

May 15—Students who plan to take graduate work during pre-session must have filed an application for graduate study on or before this date.

June 1—Prospective August graduates must have filed an application for graduation on or before this date.

June 2—Payment of fees for all graduate students in pre-session must be completed on or before this date.

June 8—Pre-session classes begin.

June 21—Pre-session classes terminate.

Main Session, 1967

June 1—Students who plan to take graduate work during main session must have filed an application for graduate study on or before this date.

June 15—Tentative class schedule for main session must be submitted by this date.

June 21—Payment of fees for all graduate students in main session must be completed on or before this date.

June 27—Main session classes begin.

July 1—Final draft of research project or thesis due for August graduates.

August 3—Main session classes terminate.

Post-Session, 1967

July 15—Students who plan to take graduate work dur-

ing post-session must have filed an application for graduate study on or before this date.

July 20—Tentative class schedule for post-session must be submitted by this date.
August 2—Payment of fees for all graduate students in post-session must be completed by this date.
August 7—Post-session classes begin.
August 18—Post-session classes terminate.
August 20—Summer Commencement.

Fall Semester, 1967

August 15—Tentative class schedule for fall semester must be submitted by this date.
August 15—Students who plan to take graduate work during the fall semester must have filed an application for graduate study on or before this date.
September 2—Payment of fees for all graduate students in fall semester must be completed by this date.
September 16—Fall semester Saturday classes begin.
September 19—Fall semester evening classes begin.
October 1—Prospective January graduates must have filed an application for graduation on or before this date.
November 21—Thanksgiving vacation begins.
November 27—Thanksgiving vacation ends.
December 1—Final draft of research project or thesis due for January graduates.
December 15—Christmas vacation begins.
January 2—Christmas vacation ends.
January 14—Winter Commencement.
January 20—Semester ends.

Spring Semester, 1968

December 15—Tentative class schedule for spring semester must be submitted by this date.
January 1—Students who plan to take graduate work during the spring semester must have filed an application for graduate study on or before this date.
January 22—Payment of fees for all graduate students in spring semester must be completed by this date.
January 30—Spring semester evening classes begin.
February 3—Spring semester Saturday classes begin.
March 1—Prospective May graduates must have filed an application for graduation on or before this date.
April 1—Final draft of research project or thesis due for May graduates.
April 8—Easter vacation begins.
April 15—Easter vacation ends.
May 18—Classes terminate.
May 26—Commencement.
May 26—Semester ends.

TENTATIVE PROGRAM OF CLASSES

SPRING, 1967

TUESDAY EVENINGS

(5:30-7:10 P.M.)

Art	544-545-546	Graduate Studio in Fabrics I, II, III
Bus	512	Office Organization and Management
Bus	562	Improvement of Instruction in Bookkeeping & Business Arith.
Eng	555	Realism in the American Novel
Math	503	Seminar: Computer Applications in Research
Psy	530	Psychology of Growth and Development (7:30-9:10 P.M.)
Anth	595	Pre-History
Art	527	Renaissance Art
CnEd	537	Interview Techniques in Counseling
Ed	515	Elements of Research
Geog	527	Mexico, Middle America, and West Indies
Math	511	Seminar in Mathematics II

WEDNESDAY EVENINGS

(5:30-7:10 P.M.)

Art	511	Curriculum Development, Supervision, and Administration in Art
Bus	500	Accounting Systems
CnEd	539	Group Procedures in Guidance
Ed	516	Statistical Methods in Education I
El	542	Arithmetic in the Elementary School
Eng	526	Shakespeare and His Contemporaries
Math	534	Functions of a Complex Variable II
Mus	506	Music Literature of the Late Romantic Era
Psy	540	Advanced Mental Hygiene
SS	521	Contemporary American Issues (Non-Social Science Majors) (7:30-9:10 P.M.)
CnEd	531	Philosophy and Principles of Guidance
El	541	Special Problems in Elementary Social Studies
Math	565	Theory of Groups
Mus	513	Advanced Band Scoring
Phil	581	Problems in Logic

THURSDAY EVENINGS

(5:30-7:10 P.M.)

Art	522	Art in America
Ed	531	Reading Problems of Jr.-Sr. High School Students
Ed	534	Diagnosis and Remediation in Reading
Eng	510	Bibliographical Methods in English
Geog	537	Eastern United States
Math	502	Digital Computers and Compiler Systems
Mus	534	Comparative Instrumental Methods
°Biol	574	Genetics
°Phys	541-542	Analytical Mechanics I & II
Soc	563	Intergroup Relations

(7:30-9:10 P.M.)

Art	526	Exotic Art—Art of Latin America
CnEd	535	Study of the Individual
Ed	512	Philosophical Foundations of Education
Math	572	Modern Geometry II
Mus	521	Music Literature and Materials (Non-Music Majors)
°Biol	551-552	Taxonomy of Plants I & II
°Chem	548-549	Physical Chemistry I & II
°ElSc	589	Geology
Hist	543	Modern Asian-African Problems

SATURDAY MORNINGS

(9:00-10:40 A.M.)

Art	550-551-552	Graduate Studio in Sculpture I, II, III
Bus	533	Case Problems in Business Law
CnEd	534	Evaluative Methods in Guidance II
CnEd	536	The Information Service in Guidance
Ed	513	Social Foundations of Education
El	544	Recent Trends in Elementary Language Arts
Eng	541	The Rise of American Regionalism
Geog	556	Map and Photo Interpretation
Math	532	Advanced Calculus II
*Biol	545	Microtechniques
Sci	573-574	Computations in Physics and Chemistry II
Soc	564	Sociology Seminar

(11:00 A.M.-12:40 P.M.)

Art	571	Graduate Studio in Mural Painting
Bus	521	Principles of Marketing
CnEd	538	Organization and Administration of Guidance Services
Hist	547	History of England (3 credits) 3:00 MWF
Ed	515	Elements of Research
El	545	Experimental Studies in Art Education
Eng	572	Composition
Geog	552	World Resources
Econ	555	Industrial Relations (3 credits) 4:00 MWF
Math	562	Modern Algebra II
Psy	533	Psychology of Personality
Mus	540-591	will be offered as needed.
Geog	550	Geographic Reading may be scheduled on an individual basis through the Chairman of the department.

Courses marked (*) include a laboratory period and a total of three hours per week.

TENTATIVE PROGRAM OF CLASSES**FOR PRE-SUMMER SESSION, 1967**

Student may schedule one course only. The student is expected to be on campus from 8:00 to 2:00 P.M. daily.

Art	510	Art for Exceptional Child
Art	525	Architectural Influences in Contemporary Society
Art	568	Graduate Studio In Print Making I
Art	569	Graduate Studio In Print Making II
Art	570	Graduate Studio In Print Making III
Biol	541	Comparative Anatomy I
Biol	565	Field Natural History
Bus	550	Principles and Problems of Business Education
CnEd	531	Philosophies and Principles of Guidance
CnEd	533	Evaluative Methods in Guidance I
CnEd	536	Information Service in Guidance
Econ	552	Comparative Economic Systems
Ed	511	Historical Foundations of Education
Ed	512	Philosophical Foundations of Education
Ed	513	Social Foundations of Education
Ed	515	Elements of Research (two sections)
Ed	531	Reading Problems of Jr.-Sr. High School Students
Ed	534	Diagnosis and Remediation in Reading
Ed	540	Supervision of Student Teaching
El	531	Curriculum Problems in Elementary Education
El	546	Modern Procedures and Skills in Elementary Music
ElSc	530	Quantitative Tools for Elementary Science
Eng	512	American English Grammar
Eng	537	Modern American Fiction
Eng	542	Modern British Novel

Eng	544	Seminar in the Psychology of Language
Eng	557	Modern American Poetry
FL	525	Foreign Study I (Study in Spain)
Geog	522	Aero-Space Science
Geog	594	Field Techniques
Hist	531	Economic and Social History of Pennsylvania
Hist	547	History of England
HPe	521	Seminar in Health and Safety
LRes	501	Classroom Use of Motion Pictures
Math	511	Seminar in Mathematics II
Math	521	Basic Concepts in Mathematics (non-math majors)
Mus	531	Administrative Problems in Music Education
Phys	502	Theoretical Physics I
Pols	577	Metropolitan Problems
Psy	530	Psychology of Growth and Development
Psy	531	Psychology of Exceptional Children
SS	521	Contemporary American Issues (non-Soc. Sci. majors)

**TENTATIVE PROGRAM OF CLASSES
FOR MAIN SUMMER SESSION, 1967**

During main session the student may schedule one, two, or three courses to total not more than six semester hours. Student is expected to be on campus from 8:00 A.M. until 2:00 P.M. daily.

		Period	
Anth	591	Studies in Anthropology	3
Art	513	Research and Philosophy in Art Education	2
Art	521	Contemporary Movements in Art (non-Art majors)	3
Art	540	Graduate Studio in Ceramics I	3
Art	541	Graduate Studio in Ceramics II	3
Art	542	Graduate Studio in Ceramics III	3
Art	547	Graduate Studio in Jewelry and Metal Work I	1
Art	548	Graduate Studio in Jewelry and Metal Work II	1
Art	549	Graduate Studio in Jewelry and Metal Work III	1
Art	550	Graduate Studio in Sculpture I	4
Art	551	Graduate Studio in Sculpture II	4
Art	552	Graduate Studio in Sculpture III	4
Art	553	Graduate Studio in Crafts I	1
Art	554	Graduate Studio in Crafts II	1
Art	555	Graduate Studio in Crafts III	1
Art	556	Graduate Studio in Theatre Arts	All Day
Art	561	Graduate Studio in Drawing	4
Art	562	Graduate Studio in Oil Painting I	3
Art	563	Graduate Studio in Oil Painting II	3
Art	564	Graduate Studio in Oil Painting III	3
Art	565	Graduate Studio in Water Color I	2
Art	566	Graduate Studio in Water Color II	2
Art	567	Graduate Studio in Water Color III	2
Biol	533	Biological Literature	1
Biol	555	Principles of Plant and Animal Distribution	2
Biol	561	Plant Structure	3
Biol	566	Cellular Physiology I	2
Biol	567	Cellular Physiology II	3
Biol	568	Demonstrations in Biology	4
Bus	502	Advanced Tax Accounting	2
Bus	503	Financial Statement Analysis	1
Bus	510	Business Communications and Report Writing	2
Bus	513	Foundations of Teaching Skills in Secretarial Courses	1
Bus	514	Executive Secretarial Training	4
Bus	523	Marketing Research	1
Bus	530	Money and Banking	2
Bus	534	Consumer Economic Problems	2
Bus	536	Automated Data Processing (4 credits)	2-3
Bus	541	Principles of Management	1

		Period
Bus	542	Human Relations in Business
Bus	552	3
Bus	561	Seminar in Business Education
Bus	570	4
		Improvement of Instruction in Basic Business Courses
		1
		Economic Backgrounds in Business (non-Business majors)
CnEd	525	4
CnEd	531	Guidance in the Elementary Schools
CnEd	533	1
CnEd	534	Philosophies and Principles of Guidance
CnEd	535	1
CnEd	536	Evalutive Methods in Guidance I
CnEd	537	2
CnEd	538	Evalutive Methods in Guidance II
CnEd	539	1
CnEd	541	Group Procedures in Guidance
CnEd	542	2
Chem	546	Supervising Experience in Counseling
Chem	547	2-3
Econ	546	Biochemistry I
Econ	547	1
Econ	553	Biochemistry II
Econ	555	2
Ed	511	Contemporary Economic Issues
Ed	512	4
Ed	513	Industrial Relations
Ed	514	3
Ed	515	Historical Foundations of Education
Ed	516	2
Ed	517	Philosophical Foundations of Education
Ed	518	2
Ed	519	Social Foundations of Education
Ed	520	1-3-4
Ed	521	Elements of Research
Ed	522	1-3
Ed	523	Statistical Methods in Education I
Ed	524	1-2
Ed	525	Statistical Methods in Education II
Ed	526	1
Ed	527	Principles and Practices In Speech Improvement
Ed	528	1
Ed	529	Theory and Clinical Practice in Reading
El	533	2-3
El	534	Reading Disabilities of Elem. School Children
El	535	2
El	536	Reading Disabilities of Elem. School Children
El	537	4
El	541	Special Problems in Elem. Social Studies
El	542	1
El	543	Resource Materials in Elem. Science
El	544	1
El	545	Recent Trends in Elem. Language Arts
El	546	2
ElSc	547	Resource Materials in Children's Literature
ElSc	568	3
ElSc	569	Field Biology I
ElSc	570	4
ElSc	540	Field Biology II
ElSc	541	Chemistry I
Eng	540	3
ElSc	542	Chemistry II
Eng	510	4
Eng	521	Bibliographical Methods
Eng	522	2
Eng	523	Modern European Fiction
Eng	524	1
Eng	525	Development of Modern English
Eng	526	1
Eng	527	Restoration and 18th Century Drama
Eng	528	3
Eng	529	British Drama Since 1880
Eng	530	4
Eng	540	British Drama Since 1880
Eng	541	20th Century American Drama
Eng	550	3
Eng	551	Workshop in Play Production
Eng	552	All Day
Eng	553	Modern British Poetry
FL	554	2
FL	521	Modern British Poetry
FL	522	2
FL	523	Language and Society
FL	524	2
FL	525	Foreign Study I (Study In Spain) None to be assigned
Geog	516	4
Geog	589	Urban/Regional Planning I
Geog	590	1
Geog	591	Cartography for Thesis Writing
Geog	592	2
Geog	593	Geographic Research I
Geog	594	2
Hist	501	Geographic Research II
Hist	502	1
Hist	511	Historiography
Hist	512	1
Hist	513	Readings
Hist	521	4
Hist	522	History Seminar
Hist	523	3
Hist	545	History of Russia
Hist	546	2
Hist	547	History of Europe 1815-1914
Hist	548	1
LRes	500	Seminar in Learning Resources
LRes	501	1
Math	501	Programmed Learning in Education
Math	502	3
Math	503	FORTRAN
Math	504	4
Math	526	Fundamental Concepts of Analysis
Math	530	1
Math	531	Differential Equations II
Math	532	2
Math	533	Advanced Calculus I
Math	534	1
Math	535	Advanced Calculus II
Math	536	1

			Period
Math	552	Number Theory	4
Math	561	Modern Algebra I	3
Math	564	Linear Algebra II	4
Math	565	Theory of Groups	3
Math	570	Point Set Theory	2
Math	571	Modern Geometry II	2
Math	573	Topology	3
Math	580	Logic	2
Math	581	Mathematical Statistics	1
Mus	501	Advanced Choral Conducting	2
Mus	503	Music Literature of the Baroque Era	1
Mus	516	Form and Analysis	2
Mus	521	Music Literature and Materials (non-Music majors)	3
Mus	532	Seminar in Music Education	3
Phil	583	American Philosophic Thought	2
Phys	503	Theoretical Physics II	1
Phys	542	Analytical Mechanics II	2
Pols	576	Legislative Process	2
Pols	578	Constitutional Law	1
Psy	530	Psychology of Growth and Development	3
Psy	531	Psychology of Exceptional Children	2
Psy	532	Studies of Pupil Adjustment	1
Psy	533	The Psychology of Personality	2
Psy	534	Abnormal Psychology	3
Psy	536	Psychology of Learning	2
Psy	539	Psychology of the Mentally Retarded	4
Psy	540	Advanced Mental Hygiene	4
Soc	562	Deviant Behavior	2
Spe	520	Curriculum and Procedures for Educating Mentally Retarded Children	3
SpH	510	Articulation	2
SpH	514	Cerebral Palsy	1

TENTATIVE PROGRAM OF CLASSES FOR POST-SUMMER SESSION, 1967

Student may schedule one course only. The student is expected to be on campus from 8:00 A.M. to 2:00 P.M. daily.

Art	523	Seminar in Art Criticism
Art	528	World Art Since 1875
Bio	542	Comparative Anatomy II
Bio	569	Ecology
Bus	551	Administration and Supervision of Business Education
CnEd	535	Study of the Individual
CnEd	539	Group Procedures in Guidance
Econ	551	International Economics
Ed	513	Social Foundations of Education
Ed	515	Elements of Research (2 sections)
Ed	517	Statistical Methods in Education II
El	531	Curriculum Problems in Elementary Education
El	541	Special Problems in Elementary Social Studies
El	542	Arithmetic in the Elementary School
Eng	531D	Major Writers: Whitman and Twain
Eng	538	Victorian Prose
Eng	571	Methods of Literary Analysis
FL	525	Foreign Study I (Study in Spain)
Geog	536	Polar Geography
Geog	591	Geographic Thought
Hist	522	History Seminar
Hist	534	Recent History of the United States
Hpe	530	Community-School Health Education Workshop
LRes	500	Seminar in Learning Resources
Math	510	Seminar in Mathematics I
Mus	533	Comparative Choral Methods

Phys	543	Analytical Mechanics III
PolS	575	American Political Parties
Psy	540	Advanced Mental Hygiene
Soc	563	Intergroup Relations
SS	561	Social Policy Studies

TENTATIVE PROGRAM OF CLASSES**FALL, 1967****TUESDAY EVENINGS
(5:30-7:10 P.M.)**

Bus	505	Advanced Accounting
Bus	521	Principles of Marketing
Bus	570	Economic Backgrounds of Business (non-Business majors)
Chem	573	Advanced Organic Chemistry I
CnEd	541	Supervising Experience in Counseling (4 s.h.) 5:30 - 9:10
CnEd	550	Supervising of Guidance Workers (4 s.h.) 5:30 - 9:10
El	545	Experimental Studies in Art Education
Eng	510	Bibliographical Methods in English
Geog	521	Advanced Human Geography (non-Geog. majors)
Hist	512	Readings
LRes	542	Preparation of Transparencies
Math	582	Theory of Probability
Math	543	Vector Analysis I
SpE	540	Diagnostic and Testing Procedures In Special Education
SpH	516	Stuttering

(7:30-9:10 P.M.)

Art	544	Graduate Studio in Fabrics I
Art	545	Graduate Studio in Fabrics II
Art	546	Graduate Studio in Fabrics III
Bio	572	General Bacteriology I
CnEd	537	Interview Techniques in Counseling
ElSc	564	Zoology I
FL	521	Language and Society
Hist	544	Seminar
LRes	541	Photographic Fundamentals for Educational Materials
Math	531	Advanced Calculus I
Phil	582	Problems of Ethics
Phys	551	Electricity and Magnetism I
SS	514	Research Methodologies

WEDNESDAY EVENINGS**(5:30-7:10 P.M.)**

Art	525	Architectural Influences in Contemporary Society
CnEd	533	Evaluative Methods in Guidance I
Econ	544	Economic Seminar
El	533	Reading Disabilities of Elementary School Children
Eng	531A	Emerson, Hawthorne and Thoreau
Hist	541	Modern European Problems
Math	575	Projective Geometry I
Mus	506	Mus. Lit. of the Late Romantic Era
Psy	540	Advanced Mental Hygiene

(7:30-9:10 P.M.)

Anth	592	Comparative Cultures
Art	511	Curriculum Development, Supervision and Administration in Art Education
Bio	562	Animal Physiology
CnEd	539	Group Procedures in Guidance
Econ	552	Comparative Economic Systems
El	547	Resource Materials in Children's Literature
ElSc	589	Geology in Elementary Science Education
Geog	542	Industrial Geography
Math	535	Real Variables I
Mus	512	Advanced Orchestration

THURSDAY EVENINGS

(5:30-7:10 P.M.)

Art	522	Art in America
CnEd	525	Guidance Service in Elementary Schools
Ed	512	Philosophical Foundations of Education
Eng	535	Criticism
Geog	524	Cultural Geography Seminar
Hist	542	Modern Asian-African Problems
Math	580	Logic
Math	521	Basic Concepts in Mathematics
Mus	534	Comparative Instrumental Methods
Phys	521	Advanced Laboratory Practice I

(7:30-9:10 P.M.)

Art	524	Art of the East
Bio	543	Embryology I
Chem	565	Advanced Inorganic Chemistry I
CnEd	535	Study of the Individual
ElSc	560	Botany I
Math	501	FORTRAN
Psy	532	Studies in Pupil Adjustment

SATURDAY MORNINGS

(9:00-10:40 A.M.)

Art	550	Graduate Studio in Sculpture I
Art	551	Graduate Studio in Sculpture II
Art	552	Graduate Studio in Sculpture III
CnEd	531	Philosophy and Principles of Guidance
CnEd	536	Information Services in Guidance
Ed	513	Social Foundations of Education
ElSc	540	Chemistry I
Eng	539	Metaphysical Poets
Eng	541	Rise of American Regionalism
Geog	570	Oceanography I
Math	526	Fundamental Concepts in Analysis
Math	511	Seminar in Mathematics II
SPE	565	Education of Children with Emotional and Social Maladjustments
Soc	561	Social Policy Studies (non-Soc. Sci. majors)

(11:00 A.M.-12:40 P.M.)

Art	565	Graduate Studio in Water Color I
Art	566	Graduate Studio in Water Color II
Art	567	Graduate Studio in Water Color III
Bus	512	Office Organization and Management
CnEd	538	Management of the Guidance Service
Ed	516	Statistical Methods in Education I
Eng	525	Early English Drama
Geog	532	Mediterranean World
Math	561	Modern Algebra I
Phys	511	PSSC Laboratory
PolS	571	Foreign Policy Studies
Psy	530	Psychology of Growth and Development

DAYTIME CLASSES

Geog	528	South American Seminar (3 s.h.) T,Th 4:00 - 5:15
Hist	545	History of Russia (3 s.h.) M,W,F 3:00

TENTATIVE PROGRAM OF CLASSES**SPRING, 1968****TUESDAY EVENINGS**

(5:30-7:10 P.M.)

Art	513	Research and Philosophy in Art Education
Bus	510	Business Communications and Report Writing

Bus	562	Improvement of Instruction in Bookkeeping and Business Arithmetic
Chem	574	Advanced Organic Chemistry II
CnEd	541	Supervising Experience in Counseling (4 s.h.)
CnEd	550	Supervising of Guidance Workers (4 s.h.)
El	542	Arithmetic in the Elementary School
Eng	510	Bibliographical Methods
Geog	588	Physiography (U. S. A.)
Hist	521	Seminar
LRes	505	Role of Learning Resources in Broadcasting
Math	532	Advanced Calculus II
Psy	530	Psychology of Growth and Development
SpE	521	Curriculum and Occupational Orientation for Older Pupils with Retarded Mental Development
SpH	518	Voice

(7:30-9:10 P.M.)

Art	528	World Art 1875
Bio	573	General Bacteriology II
CnEd	537	Interview Techniques in Counseling
ElSc	565	Zoology II
Hist	511	Readings
LRes	506	Evaluation of Research in the Educational Effectiveness of Mass Media
Math	581	Mathematical Statistics
Phil	581	Problems of Logic
Phys	552	Electricity and Magnetism II

WEDNESDAY EVENINGS

(5:30-7:10 P.M.)

Art	521	Contemporary Movements in Art (non-Art majors)
CnEd	538	Management of the Guidance Service
Ed	516	Statistical Methods in Education I
Eng	565	The Faust Literature
Hist	533	Social and Intellectual History of the United States
Math	576	Projective Geometry II
Mus	507	Musical Literature Since 1900
Psy	540	Advanced Mental Hygiene

(7:30-9:10 P.M.)

Art	561	Graduate Studio in Drawing
Bio	553	Principles of Animal Taxonomy
CnEd	536	Information Services in Guidance
El	541	Special Problems in Elementary Social Studies
Geog	541	Agricultural Geography
Geol	515	Minerology
Math	536	Real Variables II
Mus	513	Advanced Band Scoring
PolS	573	Regional Political Studies

THURSDAY EVENINGS

(5:30-7:10 P.M.)

Art	527	Renaissance Art
Bus	550	Principles and Problems of Business Education
CnEd	531	Philosophy and Principles of Guidance
Ed	531	Reading Problems of Junior-Senior High School Students
Ed	534	Diagnosis and Remediation in Reading
Eng	529	Romantic Poets
Geog	531	Northwestern Europe
Hist	501	Historiography
Math	552	Number Theory
Mus	533	Comparative Choral Methods
Phys	522	Advanced Laboratory Practice II

(7:30-9:10 P.M.)

Art	543	Exhibition Techniques
Bio	544	Embryology II
Chem	566	Advanced Inorganic Chemistry II
CnEd	535	Study of the Individual
Ed	512	Philosophical Foundations of Education
Ed	516	Statistical Methods in Education I
ElSc	561	Botany II
Math	502	Digital Computers and Compiler Systems
Math	570	Point Set Theory
Soc	563	Intergroup Relations

SATURDAY MORNINGS

(9:00-10:40 A.M.)

Art	571	Mural Painting
Bio	563	Physiology of Plants
Bus	522	Sales Promotion and Advertising
CnEd	534	Evaluative Methods in Guidance II
Econ	553	Contemporary Economic Issues
El	544	Recent Trends in Elementary Language Arts
ElSc	541	Chemistry II
Eng	539	Modern American Fiction
Eng	580	Thesis Seminar
Geog	571	Oceanography II
Math	510	Seminar in Mathematics I
Math	573	Topology
Psy	533	Psychology of Personality
SpE	522	Orientation to Rehabilitation

(11:00-12:40 P.M.)

Anth	591	Studies in Anthropology
Art	553	Graduate Studio in Crafts I
Art	554	Graduate Studio in Crafts II
Art	555	Graduate Studio in Crafts III
CnEd	539	Group Procedures
Ed	513	Social Foundations of Education
Ed	515	Elements of Research (2 sections)
Eng	542	Contemporary British Novelists
Geog	525	Africa: South of Sahara
Math	562	Modern Algebra II
SS	521	Contemporary American Issues (non-Soc. Sci. majors)

DAYTIME CLASSES

Geog	553	Political Geography (3 credits) T, Th 4:00 - 5:15
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THE GRADUATE SCHOOL

Indiana University of Pennsylvania

Indiana, Pennsylvania

GENERAL INFORMATION

Location

Indiana University of Pennsylvania is located in Indiana, Pennsylvania, a community with a population of approximately 20,000. Indiana is 30 miles north of Johnstown and 60 miles northeast of Pittsburgh. Situated in the foothills of the Allegheny Mountains, Indiana has a climate that is conducive to study the year round.

University Catalog

Detailed information about the University, its academic requirements, the names of the faculty, and the facilities are described in the general catalog. This publication may be obtained by writing to the Registrar.

Objectives of the Graduate School

The primary purposes of the graduate programs at Indiana are: To encourage excellence in scholarship, to provide for depth in the student's special field, and to stimulate enthusiasm for continued cultural and professional growth.

History of the Graduate School

Graduate work was inaugurated at Indiana University of Pennsylvania in September, 1957.

The Graduate School at Indiana offers work leading to the degree, Master of Education. A student may now complete the requirements for this degree by following any one of the sixteen programs. These programs are Art, Business, Elementary Education, English, Geography, Guidance, Mathematics, Music, Biology, Chemistry, Elementary Science, Physical Science, Science, Social Science, Speech and Hearing, and Special Education.

The Graduate School now offers programs leading to an M.S. Degree in Mathematics, an M.A. Degree in English, an M.A. Degree in History, an M.A. Degree in Counseling Services, and an M.A. and M.S. in Geography. A special non-degree program leading to certification as a "Learning Resources Specialist" is available.

Admissions Policy for Graduate Study

Admission to the Graduate School at Indiana is governed by the following policy which has been established by the Graduate Council:

1. The applicant must present a Bachelor's degree from a college or university that has been accredited by the Middle States Association of Colleges and Secondary Schools or the appropriate regional accrediting agency.
2. The applicant must present a transcript of his undergraduate work showing a 2.5 honor point value for all four years of his undergraduate work. The 2.5 assumes a grade of A to have 4 honor points per credit hour, a grade of B to have 3 honor points per credit hour, and a grade of C to have 2 honor points per credit hour. If the applicant's undergraduate record does not meet this 2.5 honor point value, or if he is a graduate of an unaccredited college, he may be admitted by making a satisfactory score on an entrance qualification examination.
3. If the applicant is in the field of education and interested in certification, he must possess a Provisional Pennsylvania Teacher's Certificate or its equivalent in the field in which he wishes to do graduate study.
4. A satisfactory recommendation must be obtained from the applicant's undergraduate department or from qualified references.
5. Students applying for the degree in Music Education must present evidence of musical maturity by means of a tape recording of their major area of music performance. This should be mailed to the chairman of the Music Department with a covering letter at the time of application.

Admission to Graduate Study does not automatically mean that the student is a candidate for the Master's degree at Indiana. Admission to candidacy for the degree may be granted only after six or more hours of graduate work have been completed successfully at Indiana.

Steps Necessary for Admission to Graduate Study

1. The applicant will file an application for graduate work with the Dean of the Graduate School. Write to the Dean of the Graduate School, for application forms.
2. Each applicant will present a transcript of all undergraduate work taken for the Bachelor's degree. Transcripts of previous work taken at Indiana need not be submitted.
3. Each applicant may be required to have a personal interview with the Dean of the Graduate School or an assigned faculty member.

When to Apply for Admission

Application forms for admission may be obtained from the Graduate Office. Applicants are urged to complete the necessary

steps for admission as soon as possible. (Check calendar on pages 4 and 5 for deadline dates.) Write to Dean of the Graduate School, Indiana University of Pennsylvania, Indiana, Pennsylvania.

GRADUATE RECORD EXAMINATION

The Graduate Record Examinations will be given periodically at the Indiana University of Pennsylvania. These examinations are required or recommended of candidates for admission to many American graduate schools and of applicants for graduate fellowship awards.

While these examinations are not required of all applicants for admission to graduate standing at Indiana, a good score in these tests is a very helpful credential. Some applicants are required to submit results of the Graduate Record Examination before determining their qualifications to pursue graduate work. Results of the examination should be sent to the Graduate Office.

The Graduate Record Examination may be required of applicants for scholarships or assistantships.

After September 1, 1965 the Graduate Record Examination will be required of all majors in Counselor Education in the Graduate School of Indiana University of Pennsylvania.

A Bulletin of Information with registration form may be obtained from the Graduate Office, Indiana University of Pennsylvania or from The Educational Testing Service, Box 955, Princeton, New Jersey 08540.

Admission to Candidacy for a Master's Degree

The student should complete the following steps to qualify for admission to candidacy:

1. Submit an official application for admission to candidacy.
2. Submit a transcript of graduate work completed at other institutions.
3. Complete at least six semester hours of graduate work at Indiana.
4. Receive satisfactory course evaluation from the student's graduate instructors.
5. Submit a tentative program of study for the completion of the graduate program.

The application for admission to candidacy, the transcript of the graduate record, and the tentative program of study should be submitted by the student to the Dean of the Graduate School. Acceptance to candidacy requires the approval of the Dean of the Graduate School.

Semester Hours Required for a Master's Degree

A minimum of thirty semester hours of approved graduate work beyond a Bachelor's degree is required. A well balanced, unified and complete program of study will be required regardless of the minimum credit requirement. Many students may find it

necessary to earn more than the minimum number of credits before they will be regarded ready for the degree. Indiana University of Pennsylvania is not committed to grant a degree upon the completion of thirty credits.

Full Time - Part Time Students

It is possible for students to schedule a full time load in many of the approved programs. Ten to sixteen semester hours of work per semester is regarded a full time graduate schedule. Full time students should submit their proposed schedule for approval as early as possible. For part time students who are teaching, a maximum of four semester hours or two courses may be scheduled each semester. The number of semester hours of work obtained during summer sessions shall not exceed the number of weeks of attendance.

Application For Graduation

The student is responsible for submitting a formal written application for graduation and for fulfilling all requirements for the degree in accordance with the calendar in this bulletin.

Class Cancellation

It is the policy of the Graduate School not to cancel regularly scheduled classes because of weather conditions, nor does the School issue announcements over radio stations or in newspapers or give information through its switchboard that classes will be suspended because of such conditions. In cases of an emergency which disrupts transportation facilities or creates personal problems, students should make decisions as to attendance which appear appropriate to them in their particular circumstances.

Time Limit

Thirty semester hours must be completed within the five-year period immediately preceding the date when all the requirements for the degree are completed. Any work accepted by transfer must also fall within this period. For justifiable reasons the Graduate Council may extend the period.

Residence

A minimum of ten semester hours will be required to be taken during summer sessions. The ten hours need not be taken in any one summer but may be extended over two or more different summers. During summer study, it is assumed that the student is not employed or engaged in any other work, and that his graduate study has top priority in his schedule. A minimum of twenty-four hours must be completed on the Indiana campus either in summer or in part time or full time study during the academic year.

Scholarship Requirement

A candidate must have maintained a grade point average of 3.0 (B), in all graduate work. Only grades "A," "B," or "C" are acceptable toward a Master's degree. Marking system: grade of "A," 4 quality points; "B," 3 quality points; "C," 2 quality points. The work in any course must be completed by the final meeting of the particular class. An incomplete grade will be issued only when the work is interrupted due to a health condition. Under such a condition the "I" grade must be removed within sixty days following the end of the session.

Transfer of Credit

Resident (on main campus) graduate work of high quality done in a recognized graduate school elsewhere and coming within the five-year time limit may be accepted to the extent of 6 semester hours. Such credits will be transferred to the Graduate School at Indiana only after the student has applied for admission to candidacy for the degree, and then only if the chairman of the department concerned, after conference with the student, recommends to the Dean for his approval the transfer of such credits as coordinate with the student's program in his chosen field. Work already applied toward another degree cannot be accepted; nor extension work completed at another institution. The final six hours in any program must be completed at Indiana.

No credit will be granted toward a Master's Degree for work completed in extension courses or in off-campus centers of another institution. Transfer credit will not be accepted for courses in which a grade lower than B or its equivalent has been received. Applications for transfer of credits, which should be filed prior to taking course work elsewhere, are available in the Graduate Office.

Student Responsibility

The graduate student is expected to know the requirements for the degree he plans to earn. While the officers and teachers of the Graduate School will endeavor to aid in any way possible, the responsibility for any error in his own enrollment or in the interpretation of the requirements rests with the student.

Programming and Registration

The responsibility for being properly programmed and registered rests with the student. For each session the student, following the curriculum in this publication under his particular major field, prepares a schedule of courses to fit his individual needs. Normally he schedules content courses in his major as rapidly as they are available. The schedule is submitted to the Dean of the Graduate School for his approval. The student is responsible for following the specified procedure.

Fees

(Subject to change without notice)

Tuition Fee\$20.00 per semester hour

Tuition Fee for Music Education Students will be \$25.00 per semester hour for all courses except private instruction which will be charged at the rate of \$32.00 per semester hour and private organ at \$42.00 per semester hour.

Graduation Fee\$5.00

Activity Fee. The activity fee for the regular summer session is \$7.00, and \$2.50 each for the pre- and post-session.

During the academic year, part-time students (seven hours or less) will pay an activity or service fee of \$7.50. Full-time students (eight hours or more) will pay \$20.

Late Registration Fee\$1.00 per credit per day will be assessed a student who fails to complete registration, including payment of fees, on the dates and within the hours specified in the published procedure for registration for any particular semester or term.

Master's Cap, Hood and Gown FeeCandidates who have been accepted by the Graduate School for the Master's degree are required to purchase or rent from the college bookstore a Master's cap, hood, and gown to be worn at the graduation exercises. The fee for these items is nominal.

Thesis or Research Project Binding ExpensesThe binding of the required copies of the thesis or the research project is an expense which must be cared for by each graduate candidate. The current charge for binding a thesis is \$4.50 per copy and for binding a research project, \$1.00 per copy.

Transcripts of Graduate Work

Transcripts of one's graduate work may be obtained by contacting the registrar's office. The fee for this service is \$1.00 per transcript.

Refunds

There will be no tuition refunds except in cases of prolonged illness. A request for such a refund must be accompanied by a medical certificate indicating prolonged illness and inability to work or attend classes. Half of the tuition fee will be refunded if the request is made prior to the completion of one-third of the scheduled class periods. No refund will be made after one-third of the class meetings.

Withdrawals from Classes

If a student decides to withdraw from a course before the middle of any semester or session, he may do so by notifying the

Graduate Office in writing of his intent to withdraw. In this case a grade of W may be entered on the permanent record. A student withdrawing from a course after the middle of a semester or session will automatically receive an F. If withdrawal is caused by a health condition or for another approved reason, the grade may be indicated as incomplete and made up in accordance with an agreement between the instructor, student, and Dean of the Graduate School.

Academic Load

Many graduate students depend upon part-time or full-time employment to meet their expenses. A student who is thus employed must recognize the time demands of his work schedule in planning his graduate program. The Graduate School assumes that its facilities should be made available only to students who can benefit from graduate study to a maximum extent.

Library

The University Library provides excellent facilities for graduate work with professional librarians readily available for assisting with specialized reference work.

The present book collection of over 165,000 volumes is supplemented by extensive holdings of periodicals, microfilms, microcards, curriculum materials, federal and state documents, association publication, and phonograph records.

The Rhodes R. Stabler Library was opened in 1961. It is designed to give efficient service through a uniform flow of library materials in an attractive, but functional setting. At least one professional librarian is always on duty to provide reference service.

All periodicals, reference volumes, microfilm and microcard materials are located on the main floor of the library. The book collection arrangement follows the Dewey Decimal Classification System. Books numbered 000 through 699 as well as the **reserve book collection** are located on the ground floor. Books numbered 700 through 999, fiction, the **curriculum materials collection**, the **children's literature collection**, **Pennsylvania collection**, and government documents are located on the top floor.

Graduate students are both encouraged and expected to spend time in the Library. Particular attention is given by librarians to graduate students in procurement of needed materials and the further development of proficiencies. The Library subscribes to the spirit and the letter of the **General Interlibrary Loan Code** which regulates the procurement of interlibrary loans.

With the exception of those books which are reserved for special purposes, all books circulate for two weeks; unbound periodicals for one day. Bound periodicals do not circulate. Students should register for a Library Card, which will be needed to take out library materials.

Hours: 7:45 a.m. - 9:30 p.m.—Monday through Friday

7:45 a.m. - 5:00 p.m.—Saturday

3:00 p.m. - 8:00 p.m.—Sunday

Specific suggestions for the personal use of library materials may be found in the research manual which every graduate student is required to purchase.

Library Staff: William E. Lafranchi, Head Librarian; Caroline Grundy, Paul R. Hicks, Katheryne Mallino, Elizabeth S. Parnell, Marie E. Snead, Malcolm Stilson, Euphemia N. Waddell, Edward G. Wolf, Daniel Shively.

Placement Service

Placement is a service offered by Indiana University of Pennsylvania to its graduates without charge. The services of the Placement Bureau are available to students who received their Master's degree or who have been accepted as candidates for the degree in the Indiana Graduate School. Graduate students wishing to take advantage of placement service should complete the necessary forms with the Director of Placement.

Laboratory School

The Laboratory School with an enrollment of 215 students from kindergarten through sixth grade provides an opportunity for graduate students to observe and to participate in problems relating to teaching.

Audio-Visual Center

The Audio-Visual Center provides graduate students with an excellent collection of films, filmstrips, and other audio-visual equipment. Students may learn how to use audio-visual materials through courses offered in this area.

Permanent Certification Requirements

By action of the State Council of Education, all college certificates issued after October 1, 1959 require the completion of at least twelve hours of post-baccalaureate work for permanent certification. Provisional certificates issued after October 1, 1963 require twenty-four semester hours for permanent certification. Of the twenty-four hours at least twelve must be in the field of certification.

All teachers who are able to qualify for admission to a graduate program and who are able to profit by graduate work should be encouraged to do the work required for Permanent Certification in a Graduate Program in order that it may also be used toward a Master's degree.

For teachers in the public schools, the graduate programs are designed to meet the credit requirements for permanent certification. The programs at Indiana have the program approval status with the Pennsylvania Department of Public Instruction.

Assistantships

Full-time students interested in graduate assistantships for the academic year should apply at the Graduate Office not later than February 1 for assistantships beginning in September. The number of assistantships depend upon the approval of the budget requests and may vary from year to year.

Scholarships

The Board of Trustees of the Indiana University of Pennsylvania has authorized the college Loan and Scholarship Committee to award some scholarship aid to meritorious graduate students. The following suggestions have been presented by the Loan and Scholarship Committee:

1. One \$50.00 scholarship be awarded each semester to that graduate student who best merits the award.
2. Three members of the Graduate Council serve as a committee to recommend the recipient to the Loan and Scholarship Committee.
3. Nominations for the award be made to the committee by the Dean of the Graduate School.
4. To be eligible for nomination the student must have completed twelve semester hours of graduate work at Indiana and be an approved candidate for the Master of Education degree at Indiana.

Kappa Delta Pi Graduate Scholarship

The Kappa Delta Pi Graduate Scholarship was established by Beta Gamma Chapter of this college to honor that member of the graduate group who is judged the ideal student. This award of twenty-five dollars is made each year by a committee of the local chapter and is awarded on the basis of scholarship and research competition.

Student Aid

Indiana is able to offer limited assistance in student aid through employment for those Graduate Students pursuing study on a full-time basis. For further information, contact the chairman of the department involved or the Dean of the Graduate School.

Counselorships for Men

Appointments are available to men graduate students to serve as Hall Counselors and House Heads in undergraduate dormitories on and off campus. Background or training in counseling or personnel work is desirable though not essential. These appointments are made for each semester, and are usually renewable for the

second semester. They provide the recipient with room and, in some instances, with an advance toward board. Requests for information and applications should be addressed to the Dean of Men. Completed application forms should be submitted to his office by April 1 for openings in the Fall.

Counselorships for Women

Several appointments are available to women graduate students to serve as counselors in residence halls. Counselors receive \$30.00 per month in return for working with under-graduates in the areas of social, academic, and emotional adjustment. Applications should be submitted to the office of the Dean of Women by March 25.

Veterans

Indiana is approved to offer training under the various G.I. Bills (Public Law 550) and Public Law 894 (disabled Korean veterans). Students who are entitled to training under one of these bills should contact the Veterans' Counselor immediately after being accepted for admission to Indiana in order to secure additional instructions. This procedure is necessary so veterans may be included on the monthly payrolls. The Office of the Veterans' Counselor is in Room 101, Whitmyre Hall.

Auditors

Students not eligible to enroll for credit may enroll as auditors. Course fees are the same as for those enrolled for credit. Anyone qualified for admission is expected to apply formally for admission before requesting permission to enroll in any graduate class.

Housing Facilities

Room reservations for women can be made by writing to the Dean of Women. An advance registration deposit will not be required to reserve a room for summer sessions.

Students are not expected to room alone. Therefore, prospective students are urged to apply in pairs. In this way each student is assured a congenial roommate. Single applications are handled to the best possible advantage, but the college prefers that students make their own choices whenever possible. Applications for rooms are filed in the order in which they are received. Students are requested to write to the Dean of Women if there is any preference in rooms, and to indicate whether a room with or without water is desired. The college will give preferences to those whose reservation deposit has been paid in advance.

Men in the Indiana Graduate School who desire housing facilities for the summer should write for information and reservations to the Dean of Men. All housing arrangements should be cared for as early as possible.

The housing fee, which includes room, board, and laundry, is \$17.00 per week.

Undergraduate Summer Program

Indiana University of Pennsylvania maintains a comprehensive program of undergraduate instruction throughout the summer. Detailed information on the undergraduate program may be obtained by writing to the Dean of Academic Affairs for the Summer School Bulletin.

Graduate Study in Reading

Elementary teachers interested in reading may apply six (6) semester hours of work in the area of professional studies in the Elementary Program. Junior and Senior High School teachers majoring in English may apply six (6) semester hours of work in the professional studies area in the English program. Reading will be written on the certificate valid for English when an applicant has completed a minimum of six (6) semester hours in developmental and remedial reading.

Normally a student will follow this sequence:

Elementary teachers will take El 533 as the initial course and then follow with Ed 534 and then 535.

Secondary teachers will start with Ed 531 and follow with Ed 534 and then 535.

REGULATIONS FOR PRINCIPAL'S CERTIFICATES IN PENNSYLVANIA

On October 1, 1964, new regulations for the issuance of principal's certificates became effective. The new regulations for the provisional elementary or secondary principal's certificate are substantially as follows: An applicant shall: (1) Hold a Pennsylvania College Certificate. (2) Have three years of successful experience. (3) Complete 45 semester hours of graduate study, including a Master's degree with the following minimum requirements: (a) 12 semester hours in an academic field other than psychology; (b) graduate study in developmental and remedial reading; (c) 15 semester hours distributed among administrative processes, curriculum and instructional processes, and the history and role of the school in society; and (d) documentary evidence of proficiency in English. The College Certificate and experience must be at the level (elementary or secondary) for which administrative certification is requested.

The Cooperative Administration of the Regulations by Indiana University of Pennsylvania and The Pennsylvania State University

An applicant for a Provisional Elementary or Secondary Principal's certificate must be endorsed by an institution with an approved program in administration. Indiana does not provide a program in administration but has a cooperative arrangement with The Pennsylvania State University whereby a student interested in this certification may secure the endorsement of the approved institution by the following plan.

1. If a candidate for one of these certificates completes graduate work at Indiana for a Master of Education Degree in Elementary Education or in an academic field, he may complete the post master's-work (at least 15 hours) at The Pennsylvania State University.
2. When the student applies for admission to candidacy for the M.Ed. at Indiana, he should indicate his intention to seek principalship certification. The Dean of the Indiana Graduate School will review the candidate's qualifications and may recommend the candidate to The Pennsylvania State University.
3. The Pennsylvania State University decides how much of the graduate work completed at Indiana may be counted towards the 45 hours needed for certification endorsement. Part or all of the minimum 30 hours earned for the M.Ed. at Indiana may be acceptable. The student should plan to schedule reading courses and courses in measurement and statistics as electives in his program at Indiana.
4. The completion of the research requirement at Indiana may be accepted as documentary evidence of proficiency in English.
5. After completion of his graduate program at Indiana, the student should seek admission to the Graduate School of The Pennsylvania State University indicating his interest in principalship certification. For application forms and information write to: The Assistant Dean for Admissions, The Graduate School, The Pennsylvania State University, University Park, Pennsylvania.
6. The provisional certificate based on the 45 hours is valid for serving as a Principal for five years. To make this provisional certificate permanent, 15 additional approved graduate hours are required and may be completed at The Pennsylvania State University or other institutions with an approved administration program.

ADVANCED GRADUATE STUDY BEYOND MASTER'S DEGREE

Students may find that more courses are offered that would be of benefit to them than they are able to include in their Master's degree program. These students are encouraged to continue their training after receiving their Master's degree and this additional training will be recognized by many school districts for salary purposes and by the Bureau of Teacher Certification for certification purposes. Students are advised, however, that most graduate schools have their own residence requirements and will probably not accept more than 30 credit hours (or Master's equivalent) of graduate credit earned at Indiana toward the Doctor's degree at their institution.

Appropriate certificates may be awarded to the student who completes an additional 15 or 30 credit hours beyond the Master's degree. For purposes of this certificate these credits must be apportioned in a manner approved by the Dean of the Graduate School.

THE RESEARCH REQUIREMENT

Candidates for the M.A., M.S., or M.Ed. degree must satisfy the research requirement as established by the Graduate Council and designed by the departments of the various graduate fields. This requirement is essentially that every candidate must conduct some independent study related to his major field and report on this study with a written thesis or research project, a recital, or another approved method. The degree sought, the ability and record of the candidate, and the nature of the proposed research are factors in determining how each candidate will be advised to satisfy this requirement.

Purposes of the Research Requirement

The initiation, conduct, and description of a research study results in professional growth usually not attained in other ways. The completed requirement certifies that the student is competent to identify a research topic and to pursue research in his field. An acceptable research report should show evidence that the student:

1. Has comprehended the essentials of his problem, has followed a well-organized plan of work, and has presented satisfactory solutions.
2. Has made a comprehensive study of the related literature.
3. Has made an independent and intensive study of the problem.
4. Has a practical working knowledge of research procedures.
5. Has shown the ability to write in a professional style.
6. Has reached conclusions justified by the findings.
7. Has produced a report of value to the subject field or to professional education.

Distinction Between a Thesis and Research Project

The study may be in a subject field or in professional education. A thesis will carry from two to four hours of graduate credit as determined by the chairman of the thesis committee and the Dean of the Graduate School. The Dean of the Graduate School will apply the thesis credit to the student's program in the Subject Matter Concentration Area or in the area of Professional Studies depending on the nature of the topic selected. The research project does not carry graduate credit and, unlike the thesis or recital, may not be counted as part of the thirty semester hours required for the degree.

The basic distinction between a research project and a thesis is as follows: the project must make a contribution to the student by helping him to improve his teaching or other educational activity; the thesis, in addition, should contribute new knowledge to the field of study.

The project need not represent original research and may consist of adapting other findings to the student's local situation or of repeating other investigations in different circumstances. The thesis, however, should make a contribution to the student's field of inquiry—a far more rigorous condition than that established for the project.

Minor distinctions may be made with regard to the extent or scope of the study and the level of research competence needed to accomplish the study, but these are distinctions subordinate to the basic one given above. Deciding if a particular activity is of a thesis or project nature is primarily the responsibility of the student's adviser who must determine if the study will truly contribute to the field or if it will adapt available data to a new situation.

Steps in Satisfying the Research Requirement by Submitting a Research Project

1. The student schedules the course or courses designated by his major field department as designed to assist him in developing the necessary research techniques. Since many projects require considerable time for completion, it is desirable to schedule this work early in the graduate program.
2. The student selects an area of interest in which to do his research.
3. The student gathers from his own experience and from a perusal of completed research some specific topics within his area of interest that might satisfy the research requirement.
4. The student discusses these tentative research plans with the Chairman of his major field department.
5. The student, with the guidance and approval of the Chairman, selects a graduate faculty member who is qualified in the area of the research to act as his adviser. The student secures the agreement of the designated faculty member.
6. The student, with the guidance of his adviser, outlines the nature and scope of a specific research topic.
7. The student develops his topic outline into a formal research proposal. (Sample proposals and suggested proposal outlines are available in the Research Office, Room 203, Clark Hall.) The adviser approves each section of the research proposal as it is completed.
8. The student types three copies of his research proposal (one for himself, one for his adviser, and one for the Director of Research) and submits the latter two to his adviser together with the Research Approval Form (available in the Appendix of this bulletin).

9. The adviser signs Section II of the Research Approval Form and sends it, together with one copy of the research proposal, to the Director of Research.
10. The Director of Research reads the research proposal. He signs Section III of the Research Approval Form and sends it together with the research proposal to the Dean of the Graduate School. If the Director of Research desires certain minor changes in the proposal these are forwarded to the adviser. If major revisions are necessary, the research proposal is returned to the adviser.
11. The Dean of the Graduate School, on receiving the student's research proposal and the Research Approval Form signed in Sections II and III, notifies the student by letter that his research proposal has been approved and if successfully completed will satisfy the Graduate School's research requirement. In most cases the approval of the research proposal expires after one year.

NOTE: The student must complete the first eleven steps before applying for graduation.

12. The Director of Research files the research proposal in the student's folder in the Graduate School Office.
13. The student conducts his research. The adviser is frequently given progress reports. Changes in the approved research proposal are permitted provided they have been discussed with the adviser, and the Director of Research has been notified in writing.
14. The student submits the first rough draft of his research project to his adviser. The main emphasis in this draft is organization, sufficiency of data, and accuracy of analysis.
15. After the adviser reads the first draft, a conference is held to discuss any necessary revisions.
16. The student prepares the final rough draft. This draft meets the style and format requirements outlined in W. G. Campbell's **Form and Style in Thesis Writing** (available in the student bookstore). It should be free from errors in spelling, punctuation, grammar, and paragraphing.
17. The student submits the final rough draft of his research project to his adviser. The adviser reads this draft to insure that the suggestions made during the conference on the first draft have been included. He also checks the general format and style.
18. The final rough draft is sent by the adviser to the Director of Research.

NOTE: The deadline date for the final draft to be in the Research Office is December 1 for January graduation; April 1

for May graduation; and July 1 for August graduation. Only minor corrections are permitted after the deadline date, and in the event that a major revision is called for, the student is removed from the graduation list. Notification of this removal is by letter from the Director of Research.

19. The final rough draft is returned to the adviser by the Director of Research with instructions for typing the final copies and required abstracts.
20. The finished typed copies (three for the University and any additional copies desired by the student) and the required abstracts are submitted to the Director of Research.

NOTE: These finished copies and required abstracts must be in the Research Office at least one week before the commencement date.

21. The Director of Research sees that the copies are bound and distributed. The three University copies are filed in the library, in the department office, and in the Research Office.
22. The abstract of the research project is printed in the annual **Research Bulletin**.

Steps in Satisfying the Research Requirement by Submitting a Thesis

The procedure for satisfying the research requirement by submitting a thesis is the same as for the research project with the following "step" substitutions:

6. The student, with the guidance of his adviser, outlines the nature and scope of a specific research topic. The adviser determines whether or not the proposed research will contribute new knowledge to the field of study and thus qualify as a thesis. The adviser and the chairman of the major department select a thesis committee. This committee normally consists of the adviser, who acts as chairman; the chairman of the major department; the Director of Research; and at least one other faculty member.
8. In addition to his own copy, the student prepares one copy of his proposal for each member of his committee and submits them, together with the Research Approval Form (available in the Appendix of this bulletin) to his adviser. The adviser distributes them to the committee members and at the same time arranges for a thesis committee meeting on a date no less than one week hence. The adviser informs the secretary of the Research Office of this date and she sends out official notices, indicating the time and the location of the meeting, to the student and to each member of the Committee.

9. The thesis committee meets at the designated time and place to discuss the nature of the proposed research and the method to be used in developing the topic. The members of the committee sign Section IV of the Research Approval Form. Any minor revisions in the proposal made by the committee are observed by the student as he prepares his rough draft. Should the committee suggest major changes, the proposal is resubmitted to the committee before Section IV of the Research Approval Form is signed. (This necessitates the formal calling of another thesis committee meeting.)
10. The Director of Research sends the signed Research Approval Form and his copy of the thesis proposal to the Dean of the Graduate School.
11. Substitute "Sections II and IV" for "Sections II and III."
17. The student prepares one copy of his final rough draft for each member of the committee and submits them to his adviser. The adviser distributes them to the committee members and at the same time arranges for a thesis committee meeting on a date no less than one week hence. The adviser informs the secretary of the Research Office of this date and she sends out official notices, indicating time and location of the meeting, to the student and each of the committee members.
18. The thesis committee meets at the designated time and place. The student briefly outlines the significant findings of his research and then answers questions put to him by committee members concerning the content, organization, and conclusions of his study. The members of the committee sign Section V of the Research Approval Form. The chairman of the committee determines the grade to be received for the thesis and records it on the Research Approval Form at the time he signs.

NOTE: The deadline date for the thesis committee meeting to approve the final rough draft is December 1 for January graduation; April 1 for May graduation; and July 1 for August graduation. If this meeting is not held by the deadline date the student is removed from the graduation list. Notification of this removal is by letter from the Director of Research.

STUDENTS PLANNING TO GRADUATE IN AUGUST MUST REMEMBER THAT MANY FACULTY MEMBERS ARE NOT ON CAMPUS DURING THE SUMMER. THEREFORE, DATES FOR THESESES COMMITTEE MEETINGS SHOULD BE WELL IN ADVANCE TO INSURE THAT THE FACULTY MEMBERS WILL BE AVAILABLE.

19. At the time of approval, the Director of Research gives the student instructions for typing the final copies and required abstracts.
22. The abstract of the thesis is printed in the annual **Research Bulletin**.

Steps in Satisfying the Research Requirement by Giving a Recital

Students planning to satisfy the research requirement by giving a recital work under the direction of the chairman of the music department and an applied teacher. The outlined procedure for the Graduate Recital is available in the Music Department office. Jury approval of the student audition (Step 2 of "Suggested Procedure for the Graduate Recital") must be obtained by December 1 for January graduation; April 1 for May graduation; and July 1 for August graduation. The student is also responsible for preparing a report of his recital for the Director of Research (Step 5 of "Suggested Procedure for the Graduate Recital"). A booklet describing the form and style of this report is available in the Research Office. The recital program is printed in the annual **Research Bulletin**.

Other Methods of Satisfying the Research Requirement

Other accepted forms of research, as approved on an individual basis or as a policy of a particular degree or department, must be completed by December 1 for January graduation; April 1 for May graduation; and July 1 for August graduation.

Exceptions to Policy

The methods for satisfying the research requirement as described above are those established by the Graduate Council and implemented by the Dean of the Graduate School. Any exceptions to these procedures must have prior approval of the Dean of the Graduate School.

Duplicate copies of the research proposal and drafts of a thesis or project should be retained by the student. The Graduate School cannot accept responsibility for the loss of such materials.

The Advisory System

The purpose of the advisory system is to insure that the student's work follows a coherent, well-balanced, and unified program for his professional growth and development. The procedure for the administration of the system varies among the departments and is under the jurisdiction of the department chairman.

DEPARTMENT CURRICULUMS, INSTRUCTIONS AND COURSE DESCRIPTIONS

ART

Lawrence F. McVitty, Chairman

Barbara J. Balsinger	John A. Christ	Frank Ross
Robert J. Cronauer	James M. Innes	Robert C. Seelhorst
Thomas J. Dongilla	Joanne P. Lovette	Robert E. Slenker
Alice T. Christ	Ralph W. Reynolds	Robert J. Vislosky

The graduate program directed toward a Master of Education Degree in Art assumes that the student has reached a point of desire to increase his abilities in his chosen field. The curriculum makes it possible for students to select a balanced program of professional studies combined with fine and applied arts and crafts. The student should analyze the requirements for the degree in connection with his own needs, selecting courses which will assist in making him a stronger person in his chosen profession. The student will select his advisor for his research area.

Advisory: Each student will plan his program with a graduate adviser, appointed upon the student's admittance to graduate study. The student must have the approval of his adviser of his program. Courses taken without the adviser's knowledge may not be counted for graduation and are taken at the student's risk. Because courses are offered on a rotation basis careful planning in advance is desirable.

Research: All proposals for the research requirements in the Art Department must have the approval of at least three members of the art faculty (usually the Art Department Graduate Committee). The research is then carried on by the student with a research adviser, who does not need to be the program adviser.

ART

Curriculum for Master of Education Degree

Students working for this degree with a major in Art will complete the thirty (30) semester hours of work using the following outlines as a guide:

I. General Studies—Select four to six (4 - 6) semester hours from at least 2 areas. Other choices may be made with the approval of the adviser.

Bus	570	Economic Backgrounds of Business	2 s.h.
Eng	521	Modern European Fiction	2 s.h.
Eng	540	Twentieth Century American Drama	2 s.h.
Eng	535	Criticism	2 s.h.
Eng	531A or B	Major Writers	2 s.h.
Eng	523	The Development of Modern English	2 s.h.
Eng	538	Studies in Middle English and Renaissance Literature	2 s.h.
Eng	537	Modern American Fiction	2 s.h.
FL	521	Language and Society	2 s.h.
Math	521	Basic Concepts in Mathematics	2 s.h.
Mus	521	Music Literature and Materials	2 s.h.
Phil	581	Problems of Logic	2 s.h.
Phil	582	Problems of Ethics	2 s.h.
Phil	583	American Philosophic Thought	2 s.h.
SS	521	Contemporary American Issues	2 s.h.
SS	561	Social Policy Studies	2 s.h.

II. Subject Matter Concentration Area (14 to 22 s.h.)

A. Professional Studies (4 to 12 s.h.)

1. At least eight (8) semester hours in this section required for students seeking a Supervisor of Art certificate; otherwise, elect four (4) semester hours.

Art	510	Art and the Exceptional Child	2 s.h.
Art	511	Curriculum Development, Supervision, and Administration in Art	2 s.h.
Art	513	Research and Philosophy in Art Education (Prerequisite: Ed 515)	2 s.h.
Ed	550	Thesis	2-4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.

B. Fine and Applied Arts and Crafts (6 to 18 s.h.)

1. The Basis of Art in Culture (Elect 2 to 6 s.h.)

Art	522	Art in America	2 s.h.
Art	523	Seminar in Art Criticism	2 s.h.
Art	524	Art of the East	2 s.h.
Art	525	Architectural Influences in Contemporary Society	2 s.h.
Art	526	Exotic Art and Art of Latin America	2 s.h.
Art	527	Renaissance Art	2 s.h.
Art	528	World Art Since 1875	2 s.h.

2. Design (Elect 2 to 6 s.h.) Three clock hours are required to earn two semester hours. The student may elect three different courses or three courses in one field as indicated by Roman Numerals—for example, Graduate Studio in Ceramics I, II and III.

Art	540-541-542	Graduate Studio in Ceramics I, II, III	2-6 s.h.
Art	543	Exhibition Techniques	2 s.h.
Art	544-545-546	Graduate Studio in Fabrics I, II, III	2-6 s.h.
Art	547-548-549	Graduate Studio in Jewelry and Metal Work I, II, III	2-6 s.h.
Art	550-551-552	Graduate Studio in Sculpture I, II, III	2-6 s.h.
Art	553-554-555	Graduate Studio in Crafts I, II, III	2 s.h.
Art	556	Graduate Studio in Theater Arts or Dramatic Arts	2 s.h.

3. Graphic Design (Elect 2 to 6 s.h.) Three clock hours are required to earn two semester hours. The student may elect three different courses or three courses in one field as indicated by Roman Numerals.

Art	561	Graduate Studio in Drawing	2 s.h.
Art	562-563-564	Graduate Studio in Oil Painting I, II, III ..	2-6 s.h.
Art	565-566-567	Graduate Studio in Water Color Painting I, II, III	2-6 s.h.
Art	568-569-570	Graduate Studio in Print Making I, II, III	2-6 s.h.
Art	571	Graduate Studio in Mural Painting	2 s.h.

III. Foundations of Education—select two (2) semester hours

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

IV. Research Techniques—two (2) semester hours are required. This course should be completed early in the student's program.

Ed	515	Elements in Research	2 s.h.
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Course Descriptions

Art 510 Art and the Exceptional Child 2 s.h.

Recent trends in education have required more specific understanding of particular students. This course is designed to consider the characteristics and needs of the mentally retarded and the intellectually gifted child with particular emphasis on the art aspects of their education. (Vislosky, Seelhorst, Slenker)

Art 511 Curriculum Development, Supervision, and Administration in Art Education

2 s.h.

This course offers a study of the organization, direction and supervision of programs of art education in grades 1-12, with emphasis placed on the administrative aspect. Curriculum development, scheduling, the selection, evaluation and requisitioning of art materials, guidance of art and classroom teachers (in-service training), multi-sensory materials, personnel selection, public relations and physical facilities are typical problems. (Lovette, Cronauer, McVitty)

Art 513 Research and Philosophy in Art Education

(Prerequisite: Ed 515)

2 s.h.

This course will be required of all Art Education Majors. It will consider the history and philosophy of art education in Europe and America in order to shape concepts of the art program of the future. Opportunity will also be provided to review research related to the foregoing so that the student may define his own research problem or thesis. The prerequisite for this course, ED 515, is to be scheduled within the first four to eight hours of graduate credit. Art 513 must be taken as soon thereafter as possible but within the first twelve hours of graduate credit. (McVitty, Seelhorst, Lovette)

Art 521 Contemporary Movements in Art

2 s.h.

Current philosophies and trends in fine arts and art education as they apply to human growth and development will be studied. Research and round table discussion of contemporary art forms will help the student to discover the concepts involved in art expression and how they evolved. (Non-Art Majors.) (Small, Seelhorst, Innes)

Art 522 Art In America

2 s.h.

This course surveys American art and its relation to the development of American ideas and ideals. (Seelhorst, Small, Innes)

Art 523 Seminar in Art Criticism

2 s.h.

This course explores the various philosophic theories of art and art products. An attempt will be made not only to relate these theories to the senses and form itself, but also to technical, psychological, and cultural values. The primary concepts explored are play, illusion, imitation, beauty, emotional expression, imagination, empathy, creativity, and experience. Some time will be given to forms of art that are not primarily visual, including music, dance, literature and poetry. (J. Ghrist, Seelhorst)

Art 524 Art of the East

2 s.h.

The aspects of Eastern Art will be studied as to the nature of their origin, meaning, and place in contemporary world culture. (McVitty, Innes)

Art 525 Architectural Influences in a Contemporary Society

2 s.h.

Architecture is studied in its relation to the needs of contemporary life. Experimental problems in structure and aesthetics as related to architecture are explored. Attempts are made to search out the historical roots of many contemporary styles of architecture. (Seelhorst, Slenker)

Art 526 Exotic Art and Art in Latin America

2 s.h.

Not all cultures are of Graeco-Roman heritage. This course will be designed around the art of other cultures, sometimes called primitive, in order that we may recognize the nature of the artistic contribution of these peoples. (J. Ghrist, Innes)

Art 527—Renaissance Art**2 s.h.**

This is the study of the great art achievements of the Renaissance in the fields of painting, architecture, sculpture, and the minor arts. Achievements in the humanities and their relationships are studied against the background of the social, economic and political developments of the era. (Innes, Reynolds, J. Ghrist)

Art 528 World Art Since 1875**2 s.h.**

The ferment which began in the French Revolution and carried through World Wars I and II has been accompanied by similar revolutions and upheavals in human life and art. This course will consider the discoveries and advances in artistic expression in modern times. Subject matter for study may be found in any or all of the arts. (Seelhorst, Innes)

Art 540-541-542 Graduate Studio in Ceramics I, II, III**2-6 s.h.**

These advanced courses in ceramics emphasize the total working process—the selection and preparation of clay bodies, manipulation of clay to achieve expressive form, exploration of decorative techniques. Acquiring familiarity with glaze materials and ability to formulate glazes, as well as control of the firing process, are requisites. Search for sources of equipment and supplies lead into the related aspects of studio planning. (Ross, McVitty)

Art 543 Exhibition Techniques**2 s.h.**

Presenting works of art well has become the duty of many in the field of art. This course will consider the requirements of Museology as problems in the design of display installations. Field trips will be taken to museums in the area. (Lovette, Slenker)

Art 544-545-546 Graduate Studio in Fabrics I, II, III**2-6 s.h.**

The fundamentals of fabric construction and some history of weaving processes are discussed. Warping, threading and basic weaves will be included in Studio I.

Studio II and III will consider drafting and work on more complex harness looms. The experimental attitude will be maintained in all classes. (McVitty)

Art 547-548-549 Graduate Studio in Jewelry and Metal Work I, II, III**2-6 s.h.**

Advanced study dealing with specialized problems in the design and execution of metal work and jewelry. A thesis may be developed based upon research in one of the areas relating to this field, history, materials, tools, processes, or teaching techniques of the craft. (Dongilla, Cronauer)

Art 550-551-552 Graduate Studio in Sculpture I, II, III**2-6 s.h.**

This is an advanced course in which students are expected to work on more complex problems of sculpture. A student may explore one or several sculpture or modeling media. (Dongilla, Slenker)

Art 553-554-555 Graduate Studio in Crafts I, II, III**2-6 s.h.**

Specialized study and experiences are related to the design and execution of problems relating to wood as a crafts material. Opportunity is presented for more intensive exploration of the materials and processes of this craft employing both hand and power tools. (Dongilla, Cronauer)

Art 556 Graduate Studio in Theater Arts or Dramatic Arts**2 s.h.**

The limitations and possibilities of the stage are considered. Practical stage experience is gained through the application of the elements of form, scale, proportion, color, lighting, and construction in the production of a play.

A variety of design is experienced through the construction of model sets. Materials are organized for both classroom and auditorium programs. (Vislosky, Seelhorst)

Art 561 Graduate Studio in Drawing 2 s.h.

Drawing as a language is the principle concern of this advanced course. The continued development of skill in communication and expression in all kinds of materials and media is an objective. The drawing as an intimate work of the artist will be stressed. (Reynolds, Innes, Dongilla)

Art 562-563-564 Graduate Studio in Oil Painting I, II, III 2-6 s.h.

Traditional and contemporary methods and techniques in the area of plastic painting media are experienced. Composition, in relation to the modern painters' problems, is stressed. Opportunity is presented for exploration and specialization in depth as well as breadth. (Cronauer, Reynolds)

Art 565-566-567 Graduate Studio in Water Color Painting I, II, III 2-6 s.h.

Painting in transparent water color, gouache, mixed media, and with new water soluble paints, such as casein and acrylic polymer tempera. Traditional, current and experimental approaches are pursued with emphasis on design and emotional content. (Reynolds, Cronauer)

Art 568-569-570 Graduate Studio in Print Making I, II, III 2-6 s.h.

This is a study on the graduate level of the modes, media, material, techniques and processes of the graphic arts and their use in expression. The student may concentrate on the intensive exploration of one media in depth or explore a number of media for breadth of experience. (J. Christ, Small)

Art 571 Graduate Studio in Mural Painting 2 s.h.

In this course the individual student should acquire a working knowledge of the materials and processes employed in mural painting, such as fresco, encaustic, oil and mosaic. The historical development of the mural as an art form should be considered as to its influence upon, and reference to, the modern mural. (Cronauer, Seelhorst)

Art 512-515—These numbers will be reserved for seminars of visiting artists as announced.

BUSINESS EDUCATION

A. E. Drumheller Chairman

Lee Roy H. Beaumont
Mary Jane Boering
Charles Cooper
John Polesky

James Stoner
Harold Thomas
Dale Woomer

The graduate program in Business Education at Indiana is primarily designed to permit the student to broaden his understanding of the business world and to study his teaching procedures in the light of new experiences.

A study of the curriculum presently offered indicates that from fourteen to sixteen credit hours are to be taken in a subject matter concentration area. Students should select courses in the basic business area along with courses from at least one of the areas concerned with either accounting, secretarial or marketing. The two courses which all degree candidates shall schedule prior to Ed 515, Elements of Research are Bus 510, Business Communications and Report Writing and Bus 522, Seminar in Business Education. Ed 515, Elements of Research, must be taken by the time the student has earned twelve semester hours credit. In this course, the student prepares a plan for a written research project or thesis.

Courses in the subject matter concentration area should be scheduled early, making use of those courses in the general studies and foundations of education areas as they can be fitted into one's schedule as the work progresses.

Prior to his admission to candidacy for the degree, (see p. 16) all business students must take the Admission Test for Graduate Study in Business which is a part of the Graduate Record Examination. Information about this examination can be obtained from the advisers or the Graduate office.

BUSINESS

Curriculum for Master of Education Degree

I. General Studies—four to six (4 - 6) semester hours of work to be selected from the following:

Art	521	Contemporary Movements in Art	2 s.h.
Eng	521	Modern European Fiction	2 s.h.
Eng	523	The Development of Modern English	2 s.h.
Geog	521	Advanced Human Geography	2 s.h.
Math	521	Basic Concepts in Mathematics	2 s.h.
Phil	581	Problems of Logic	2 s.h.
Phil	582	Problems of Ethics	2 s.h.
Phil	583	American Philosophic Thoughts	2 s.h.
SS	521	Contemporary American Issues	2 s.h.

II. Subject Matter Concentration Area—fourteen to sixteen (14 - 16) semester hours work in subject matter content to be selected from the following: A minimum of two areas are to be chosen.

A. Accounting—Prerequisite of twelve hours in Accounting

Bus	500	Accounting Systems	2 s.h.
Bus	501	Principles of Tax Accounting	2 s.h.
Bus	502	Advanced Tax Accounting	2 s.h.
Bus	503	Financial Statement Analysis	2 s.h.
Bus	504	Budgeting and Cost Analysis	2 s.h.
Bus	505	Advanced Accounting	2 s.h.
Bus	506	Interpretation of Accounting Data (for non business majors)	2 s.h.

B. Secretarial—Prerequisite of nine hours in Shorthand

Bus	510	Business Communications and Report Writing	2 s.h.
Bus	512	Office Organization and Management	2 s.h.

Bus	513	Foundations of Teaching Bus. Skills	2 s.h.
Bus	514	Executive Secretarial Training	2 s.h.

C. Marketing

Bus	520	Retail Organization and Management	2 s.h.
Bus	521	Principles of Marketing	2 s.h.
Bus	522	Sales Promotion and Advertising	2 s.h.
Bus	523	Marketing Research	2 s.h.

D. Basic Business

Bus	530	Money and Banking	2 s.h.
Bus	531	Principles of Investment in Securities	2 s.h.
Bus	532	Current Business Economic Problems	2 s.h.
Bus	533	Case Problems in Business Law	2 s.h.
Bus	534	Consumer Economic Problems	2 s.h.
Bus	536	Automated Data Processing	4 s.h.
Bus	540	Office or Retail Work Experience	4 s.h.
Bus	541	Principles of Management	2 s.h.
Bus	542	Human Relations in Business	2 s.h.

III. Professional Studies—six to ten (6 - 10) semester hours including a research project.**A. General Area**

Bus	550	Principles and Problems of Business Education	2 s.h.
Bus	551	Administration and Supervision of Business Education	2 s.h.
Bus	552	Seminar in Business Education	2 s.h.
Ed	516	Statistical Methods in Education I	2 s.h.
Ed	550	Thesis	2 to 4 s.h.

B. Instructional Area—a minimum of two semester hours

Bus	560	Improvement of Instruction in Secretarial Courses ..	2 s.h.
Bus	561	Improvement of Instruction in Basic Business Courses ..	2 s.h.
Bus	562	Improvement of Instruction in Bookkeeping and Business Arithmetic	2 s.h.

IV. Foundations of Education—two (2) semester hours of work selected from:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

V. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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Course Descriptions**Bus 500 Accounting Systems** 2 s.h.

A study of the accounting principles as applied in constructing accounting systems. Special attention will be given to the problems of management as they relate to accounting systems. This is to be done with the idea of building a system to give management the information desired for effective operation of the business. (Stoner)

Bus 501 Principles of Tax Accounting 2 s.h.

The fundamentals of Federal Income Tax Accounting are presented under the latest amendments to the Internal Revenue Code. The various income tax blanks and forms are presented and filled in with special emphasis upon the returns of individuals, single proprietorships and partnerships. Students who completed Bus 454 - Tax Accounting should not program this course. (Drumheller)

Bus 502 Advanced Tax Accounting 2 s.h.

This course is designed to give the student further familiarity with the Federal Income Tax law with emphasis upon the law concerning corporate returns, estates and trusts, federal estate tax and gift tax. Bus 501, or its equivalent, is a prerequisite to taking his course. (Drumheller)

Bus 503 Financial Statement Analysis 2 s.h.

This course is designed to give a detailed analysis and interpretation of financial statements with advanced problems supporting the theory presented. Particular types of statements as they apply to public utilities, industrials, and moneyed corporations are introduced. (Stoner)

Bus 504 Budgeting and Cost Analysis 2 s.h.

The preparation and use of flexible expense budgets; the establishment of production cost standards and the analysis of cost variances; extensive analysis of cost control and profit planning programs; and direct costing. Prerequisite: Elementary Cost. (Cooper)

Bus 505 Advanced Accounting 2 s.h.

This course is designed to emphasize the specialized phases of accounting, such as joint ventures and syndicates, installment sales, consignments, domestic agencies and branches, consolidated statements, and application of funds statements.

Bus 506 Interpretation of Accounting Data 2 s.h.

This is an accounting course for non-accounting students. It is designed to provide an understanding of accounting data from the viewpoints of management, investors, or potential investors. "How to do accounting" is not a prerequisite and is not an objective of this course. (Cooper)

Bus 510 Business Communications and Report Writing 2 s.h.

A study and composition of effective written communications. Emphasis on the positive approach, clear statements, and good form and structure. The organization and preparation of reports of the types used in education, business and government. Techniques of collecting, interpreting, and presenting information useful to executives will be studied. (Boering)

Bus 511 Advanced Shorthand for Teachers (deleted, see Bus 513)**Bus 512 Office Organization and Management** 2 s.h.

Duties and responsibilities of the office manager; principles of practical office management and their application. Includes survey and analysis development of manuals and their use; selection, training, pay and promotion of office employees; controlling expense and measuring office efficiency; quality and quantity standards; purchase and use of equipment; and report writing. (Boering)

Bus 513 Foundations of Teaching Skills in Secretarial Courses 2 s.h.

This course is designed to increase a student's background and knowledge of business skill subjects, with primary emphasis on shorthand and typewriting. Through discussion and research, students explore the rationale and psychological bases of skill development as they apply to the techniques and devices utilized in teaching business courses. (Beaumont)

Bus 514 Executive Secretarial Training 2 s.h.

This course for teachers will stress the application of secretarial skills and knowledges and emphasize the importance of good human relations in the office. The course will show ways to complement the secretarial training so that high school graduates may become competent, proficient, and well-adjusted secretaries. (Boering)

Bus 520 Retail Organization and Management 2 s.h.

This course will be directed toward the many problems of retail management. It will include a study of the present day trends in retailing, personnel management, merchandise control, pricing, promotion, services, accounting, and expense control. (Thomas)

Bus 521 Principles of Marketing 2 s.h.

A study of the risks, costs, and methods in the distribution of goods of farm and industry. A comprehensive analysis of such problems as research, competition, pricing, and laws in marketing goods from the manufacturer or producer to the consumer. (Thomas)

Bus 522 Sales Promotion and Advertising 2 s.h.

An introduction to the basic principles of sales promotion and advertising together with a consideration of the major problems encountered in the management of these activities. Major emphasis is placed on the determination of basic promotional strategy; selection of advertising media; determining the advertising appropriations; and advertising research. Advertising is discussed as an institution performing basic social and economic functions. (Thomas)

Bus 523 Marketing Research 2 s.h.

A study of research procedures and techniques applicable to problem solving in the field of marketing. A critical analysis of research techniques with considerable emphasis placed on orienting the student to the use of information gathered. Prerequisite: Marketing.

Bus 530 Money and Banking 2 s.h.

The course deals with the development of the monetary system of this country with particular attention to its present structure of our banking system. Relationship between our monetary system and our economy, means of control of our monetary system and the function and structure of the Federal Reserve System will be considered. (Cooper)

Bus 531 Principles of Investment in Securities 2 s.h.

It is the purpose of this course to familiarize the student with the many forms of investment possibilities which exist. Attention will be given to the operation of the stock markets, concepts and terminology of investing, mutual funds and their function, investment clubs and the problems involved in making investments through brokers, bankers, and stock promoters. (Cooper)

Bus 532 Current Business Economic Problems 2 s.h.

Selected economic problems of current interest and concern to society will be analyzed. An examination will be made of basic economic principles and theories as well as the thinking of recognized economists in connection with the problems studied. (Polesky)

Bus 533 Case Problems in Business Law 2 s.h.

It is to be assumed that the student has a knowledge and background of the theory of business law prior to taking this course. The course deals with the solution of case problems as applied to the various topics in the field of business law. (Woomer)

Bus 534 Consumer Economic Problems 2 s.h.

A program for the education of intelligent consumers is planned for this course. How to gain the maximum satisfaction from goods and services available to the consumer is an important consideration. An effort will be made to develop an appreciation of the problems of the producer, distributor as well as those of the consumer. (Polesky)

Bus 536 Automated Data Processing**4 s.h.**

This course covers the theory and fundamentals of operating and wiring electronic unit record equipment-key punch, reproducing punch, sorter, interpreter, 407 accounting machine. 1 hr. lecture, 3 hr. lab. daily. Prerequisite: Certificate to teach. (Wink)

Bus 540 Office or Retail Work Experience**4 s.h.**

The graduate student who has not had extensive business experience is given the opportunity to work full-time for six weeks during the summer in a business position under the supervision of the college. Evening seminars will be held weekly to discuss problems related to the work experience program. A written report of the experience will be required. (Staff)

Bus 541 Principles of Management**2 s.h.**

The course is a study of the development, nature, and meaning of the basic functions of management. Emphasis will be placed upon the functional principles involved in planning, organizing, and controlling the activities of an organization at all levels of management. The application of these principles in the general areas of production, marketing, finance, and personnel will be analyzed. (Beaumont)

Bus 542 Human Relations in Business**2 s.h.**

Human motivations and their constructive application to all aspects of business form the central theme of this course. The psychological basis of human relations will be developed as it applies in the business world. Major topics include employer-employee relations, labor relations, stockholder relations, customer relations, community relations, and public relations. (Beaumont)

Bus 550 Principles and Problems of Business Education**2 s.h.**

The purpose of this course is to survey the basic principles and practices of business education. Among the topics considered are: history of the high school business program, purposes, attitudes of management and labor toward education, the relationship of general education to business education, and trends in the field. (Stoner)

Bus 551 Administration and Supervision of Business Education**2 s.h.**

This course offers an opportunity to study the problems of organizing, directing, and supervising business education programs. Such matters as the functions of the administrator and supervisor of business education, textbook selection, teacher selection, testing programs, conferences, equipment and layout are considered. (Drumheller)

Bus 552 Seminar in Business Education**2 s.h.**

This course is devoted to a critical examination and evaluation of current literature and research in business education. The graduate student is expected to conduct an extensive study of literature representative of the entire field of business and an intensive study in one or more specialized areas compatible with his professional interests and activities. Investigation of procedures used in current and outstanding research studies is emphasized. (Staff)

Bus 560 Improvement of Instruction in Secretarial Courses**2 s.h.**

A course for experienced business teachers. Teaching procedures basic to the development of vocational proficiency in shorthand, typewriting, and transcription including: content; methods; teaching aids; available instructional materials; measurement of skills; and standards of achievement. (Staff)

Bus 561 Improvement of Instruction in Basic Business Courses 2 s.h.

This course is designed for experienced classroom teachers and for prospective teachers specializing in the basic business subjects. It deals with the aims of business education; its relation to vocational and general education; available instructional materials; curricular organization; teaching aids and devices; techniques for improving instruction; and other teaching problems of such subjects as Junior business training or general business, economic geography, business law, consumer education, salesmanship, and business economics. (Polesky)

Bus 562 Improvement of Instruction in Bookkeeping and Business Arithmetic 2 s.h.

A study of problems and techniques in the teaching of bookkeeping and arithmetic for experienced and prospective business teachers. Topics include: objectives; the place of bookkeeping and arithmetic in the curriculum; planning for teaching; techniques for improving instruction; resource materials; standards; construction of courses to meet special needs; the use of practice sets; testing and grading; and visual aids. Teaching problems of students will be emphasized. (Stoner)

Bus 570 Economic Backgrounds of Business 2 s.h.

This course is designed to provide a thorough overview of the economic environment in which business and other agencies must operate. The student will gain a broad perspective of business operations through such topics as business organization and management, consumption of goods, business risks, business cycle, budgeting and investments. This course is not open to Business Education Majors, but is designed for a general studies course in the Elementary and other programs. (Stoner)

DEPARTMENT OF COUNSELING AND GUIDANCE

George L. Spinelli, Chairman

William J. Leventry
Robert H. Saylor
Edward D. Shafter

Dorothy M. Snyder
James C. Wilson

Students seeking preparation in guidance and counseling at Indiana University of Pennsylvania may qualify for enrollment in one of two programs. One program leads to certification in school counseling and the Master's degree in Education; the other leads to the Master of Arts degree in Counseling Services. Program enrollment will be determined by the individual needs of students as reflected in educational and professional background and purposes to be served in present and future job situations.

It is important that counselor education majors have an understanding of the basic principles of psychology, and a sufficient background in mathematics to comprehend the statistical materials and methods with which the guidance counselor must be familiar. Prospective students are also urged to include introductory courses in sociology, economics and anthropology in their undergraduate preparation.

Upon admission to the Graduate School, students will be assigned an adviser who will assist with all matters related to the individual's program. No scheduling of courses should be done without prior consultation with the assigned adviser.

Curriculum for Master of Education Degree

Students working for this degree will complete a minimum of thirty (30) semester hours of work to include all courses marked with asterisks (*) and (**) in the course of study.

Students will not be admitted to degree candidacy until they have completed six credit hours of coursework in foundation courses and other department requirements including the Graduate Record Examination general test and the advanced test in Education. To avoid unnecessary delay in completing programs, these examinations should be anticipated and scheduled in conjunction with foundation courses.

Philosophy and Principles of Guidance should be scheduled as the first guidance course. Statistical methods in Education I should be completed as early as possible in the program as it is a prerequisite for the course in Evaluation Methods. It is expected that degree candidates will select a research topic closely related to guidance and counseling, and that Elements of Research will be scheduled sufficiently early in the program to permit adequate preparation for timely completion of the research project or thesis. The thesis will be distinguished from the project in that the thesis will have greater depth, suggest a unique study problem, and make a contribution to the field.

Students who initiate a master's program in counselor education will be recommended by Indiana University of Pennsylvania for provisional certification as a school counselor when they have demonstrated a thorough understanding of educational practices and completed a minimum of twenty-eight (28) credit hours of graduate work in counselor education and related subjects as outlined in the course of study.

Recommendation for permanent certification will require the completion of the Master's degree with a major in counselor education and three years of experience, with the candidate serving at least one-half time as a counselor. Under present regulations, both provisional and permanent certifications permit the holder to serve as a counselor in all the grades of the public schools.

Curriculum for the Master of Arts Degree in Counseling Services

Candidates working for this degree will complete a minimum of thirty (30) semester hours of coursework to include all courses marked with a double asterisk (***) in the course of study. All other courses appearing in the course of study are available as electives, however, matters pertaining to prerequisites must be cleared with the student's adviser and by the chairman of the department responsible for the course.

Students will not be considered for degree candidacy until they have completed six credit hours of coursework in foundation courses and other department requirements including the Graduate Record Examination general test. The advanced test in Education is not required but may be recommended on an individual basis.

Statistical methods in Education I should be scheduled as the first course in sequence. Elements of Research should be scheduled as early as possible in the program to permit adequate preparation for timely completion of a research project or thesis. It is expected that degree candidates will select a research topic closely related to guidance and counseling. The thesis will be distinguished from a project in that the thesis will have greater depth, suggest a unique study problem, and make a contribution to the field.

This degree program is not designed for students who seek certification in school counseling and guidance.

Curriculum for Master of Education Degree and Master of Arts Degree in Counseling Services

AREA I

Ed	511	Historical Foundations of Education	
Ed	512	Philosophical Foundations of Education	
Ed	513	Social Foundations of Education	
		Select one of the above	°2 s.h.
Ed	516	Statistical Methods in Education I	°°2 s.h.
CnEd	531	Philosophy and Principles of Guidance	°2 s.h.
Psy	530	Psychology of Growth and Development	°2 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	533	Psychology of Personality	2 s.h.
Psy	534	Abnormal Psychology	2 s.h.
Psy	535	Differential Psychology	2 s.h.
Psy	536	Psychology of Learning	2 s.h.

Students must satisfy departmental requirements, including the Graduate Record Examination, before continuing in Area II.

AREA II

CnEd	525	Guidance Services in the Elementary School	2 s.h.
CnEd	533	Evaluative Methods in Guidance I	°°2 s.h.
CnEd	534	Evaluative Methods in Guidance II	°°2 s.h.
CnEd	535	Study of the Individual (Case Studies)	°2 s.h.
CnEd	536	The Information Service in Guidance	°2 s.h.
CnEd	537	Interview Techniques in Counseling	°°2 s.h.
CnEd	538	Management of the Guidance Services	°2 s.h.
CnEd	539	Group Procedures in Guidance	°2 s.h.
Ed	515	Elements of Research	°°2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.
Psy	538	Psychology of the Gifted Child	2 s.h.
Psy	539	Psychology of the Mentally Retarded Child	2 s.h.
Psv	540	Advanced Mental Hygiene	2 s.h.
SS	553	Contemporary Economic Issues	2 s.h.
SS	555	Industrial Relations	3 s.h.
SS	561	Social Policy Studies	2 s.h.
SS	562	Deviant Behavior	2 s.h.
SS	563	Intergroup Relations	2 s.h.
SS	591	Studies in Anthropology	2 s.h.
SS	592	Comparative Cultures	2 s.h.

AREA III

CnEd	541	Supervised Experience in Counseling	*4 s.h.
CnEd	542	Seminar: Organization and Dissemination of Educational Information	1 s.h.
CnEd	543	Seminar: Utilization of Community and Educational Resources	1 s.h.
CnEd	544	Seminar: Curriculum Utilization	1 s.h.
CnEd	545	Seminar: Field Problems	1 s.h.

THE POST-MASTER'S PROGRAM

AREA IV

Prerequisite: Master's Degree in Counselor Education from Indiana University of Pennsylvania or other accredited institution.

Ed	517	Statistical Methods in Education II	2 s.h.
Psy	541	Individual Psychometric Techniques: Binet Scales	2 s.h.
Psy	542	Individual Psychometric Techniques: Wechsler Scales	2 s.h.
Psy	543	Introduction to Projective Techniques	2 s.h.
Psy	544	Advanced Learning Theories	2 s.h.
CnEd	550	Practicum in the Supervision of Guidance Workers	4 s.h.

Course Descriptions

CnEd 525 Guidance Services in the Elementary School 2 s.h.

This course is concerned with an overview of the total guidance function as it would apply to the elementary grades. Emphasis will be upon wide coverage of guidance concepts. (Snyder)

CnEd 531 Philosophy and Principles of Guidance 2 s.h.

This course is designed to give an overall view of the philosophy of guidance as it relates to the total educational program. It stresses the functions and implementation of guidance services, duties of guidance counselors, how guidance programs are organized, and deals with the common problem areas in guidance. It provides a framework for those seeking additional preparation leading toward certification as counselors. This course is a prerequisite for all other courses in counselor education. (Leventry, Shaffer, Spinelli)

CnEd 533 Evaluative Methods in Guidance I 2 s.h.

Emphasis in this course is placed upon the development of competency in selecting and evaluating tests and measures. Consideration is given to validity, reliability, norms, standardization, and other specific criteria. A study in intelligence tests is included with emphasis upon instruments used in group screening. (Spinelli, Wilson)

CnEd 534 Evaluative Methods in Guidance II 2 s.h.

This course is in intensive study of selected representative tests and instruments in areas of aptitude, achievement, interest, and personality. Emphasis is placed upon group and screening tests rather than on individually administered tests. (Spinelli)

CnEd 535 Study of the Individual (Case Studies) 2 s.h.

This course is designed primarily to study the principles, problems, methods and content involved in developing case studies. Consideration will be given to the kinds and the scope of data needed for understanding and to the role and the relationships concerned. (Wilson)

CnEd 536 The Information Service in Guidance 2 s.h.

This course is designed to present the information service as a distinct and vital part of the total guidance service. Emphasis is placed upon the relationship between the information service and other guidance services; the theories related to decision-making; the use of information in the process of educational, social, and vocational development; the collection, evaluation, filing, and uses of information; and the programming of information activities. (Saylor)

CnEd 537 Interview Techniques in Counseling 2 s.h.

This course deals with the theories, objectives, principles, and practices of counseling with individuals. All facets of interviewing techniques are stressed. Consideration is also given to the utilizations of test results, educational and vocational information, and other pertinent data in the counseling interview. (Shaffer, Spinelli)

CnEd 538 Management of the Guidance Services 2 s.h.

It is the primary purpose of this course to help the guidance counselor acquire the necessary competencies to manage the guidance services. Emphasis is placed upon the planning, organizing, coordinating, directing, and controlling functions of management as applied to guidance services within the framework of the school's philosophy and statement of objectives. (Saylor)

CnEd 539 Group Procedures in Guidance 2 s.h.

This course deals with the group procedures which will improve student readiness for individual counseling. The psychological aspects of group structure and behavior and the influence of the group upon the individual are examined in order to plan, implement, and evaluate the various group procedures in guidance. Techniques to identify needs common to individuals are investigated and analysis of results employed to determine those for which group procedures are appropriate. (Leventry, Saylor)

CnEd 541 Supervised Experience in Counseling 4 s.h.

This block of work brings together in an applied way virtually all of the tool subjects in guidance. Proceedings are carefully observed, supervised, and evaluated using closed-circuit television and tape recorders. (Staff)

CnEd 542 Seminar: Organization and Dissemination of Educational Information (Staff) 1 s.h.**CnEd 543 Seminar: Utilization of Community and Educational Resources (Staff)** 1 s.h.**CnEd 544 Seminar: Curriculum Utilization (Staff)** 1 s.h.**CnEd 545 Seminar: Field Problems (Staff)** 1 s.h.**CnEd 550 Practicum in the Supervision of Guidance Workers** 4 s.h.

This block of work is especially designed to give the director of guidance practical experience in the supervision of guidance workers. This course is closely integrated with Counselor Education 541—Supervised Experience in Counseling. (Staff)

EDUCATION

Stanley Lore, Chairman

A. Dale Allen
 Lois Blair
 Maude Brungard
 Don-Chean Chu

Marshall Flamm
 Anna O'Toole
 Dorothy Snyder
 Harold Youcis

Ed 511 Historical Foundations of Education**2 s.h.**

A study of the historical development of American education. European influences of the philosophies and practices of American schools will serve as a background for the course. Emphasis will be placed on the development of education in America as influenced by various individuals and schools of thought. Historical trends will be related to current problems and practices in education. (Glott, Youcis)

Ed 512 Philosophical Foundations of Education**2 s.h.**

The development of principles upon which to base instruction, recent developments in scientific methodology, and theories of curriculum and school organization will be considered in this course. Stress will be placed upon the essential phases involved in building an individual working philosophy of education. (Chu)

Ed 513 Social Foundations of Education**2 s.h.**

This course will deal with those social and cultural forces which influence education and the ways in which education has been affected by them. Particular stress will be placed upon current problems as they relate to the entire educational system and to curricular problems and practices in today's schools. (Lore, Youcis)

Ed 515 Elements of Research**2 s.h.**

Selection of a research problem, collection of data, types of research, the research report, and the use of the library in connection with the research problems will be studied. Elements of statistics are introduced. This course provides background for the preparation of the thesis or research project, and enables the student to become an intelligent consumer of the products of educational research. As part of the requirements for this course the student will prepare a written plan for a research project or thesis. (Wiley)

Ed 516 Statistical Methods in Education I**2 s.h.**

Consists of measurement and statistical techniques as used in teaching, school administration, and common educational research. The basic descriptive statistics, including measures of central tendency, variability and correlation will be developed. The reliability and validity of test scores will also be discussed. Emphasis will be placed upon the use of the statistical techniques studied and their interpretation. (Staff)

Ed 517 Statistical Methods in Education II**2 s.h.**

Advanced statistical devices for educational research workers. The basic concepts of statistical inference and prediction will be developed, including regression and prediction, hypothesis testing, analysis of variance, and partial and multiple correlation. Emphasis will be placed upon the use of interpretation of the techniques studied. Prerequisite: Ed 516 or equivalent. (Staff)

Ed 522 Principles and Practices in Speech Improvement**2 s.h.**

This course will provide for a study of the normal development of speech, classroom methods in speech improvement, and special consideration for children handicapped in speech or hearing. Library research, project work, demonstrations and experimentation will be heavily stressed. (Brungard, Flamm)

Ed 531 Reading Problems of Junior and Senior High School Students 2 s.h.

This course is planned to help the secondary or special teacher to understand and participate in the developmental reading program at the Junior and Senior High School levels, and to work with those pupils who are not able to achieve satisfactorily because of reading problems.

Special help is given in the basic reading and study skills, the diagnosis and correction of reading difficulties, the techniques of improving rate and comprehension, and the development of readiness for reading in the content field. (Snyder, Staff)

**Ed 534-535 The Diagnosis and Remediation in
Reading-Theory and Clinical Practice 4 s.h.**

This course deals with understandings, techniques, and material that aid teachers to prevent, discover, and correct the weaknesses and wrong learnings in reading of the student who is not achieving satisfactorily. The instruments for study will include a variety of tests, informal evaluations, and other helps. All areas and all levels of reading are considered. This involves two (2) courses each offering two (2) semester hours credit. Prerequisite: Course(s) in reading—Undergraduate, Ed 533 or Ed 531. (Snyder, O'Toole)

Ed 540 Supervision and Student Teaching 2 s.h.

Designed for supervising teachers and others working with student teachers, this course provides opportunity for the development of pertinent materials and for continuous evaluation of various aspects of the student teaching program. Stress is also given to evaluate procedures used in working with prospective teachers. Basic principles underlying an effective student teaching program are examined from a theoretical and applied viewpoint. Prerequisite: Teaching certificate and teaching experience. (Blair)

Ed 550 Thesis or Recital 2-4 s.h.

Students writing a thesis for credit will register for this course.

Recital: Graduate students in music education may prepare and perform a formal recital under the guidance of their private teacher in their major performing area. Approval for the presentation of a recital in lieu of the thesis must be secured from the graduate committee of the Music Education Department. A student should secure approval for this event early in his graduate program, but the actual performance of the recital should occur close to the end of his graduate program. (Staff)

ELEMENTARY EDUCATION

P. David Lott, Chairman

Lois V. Anderson

Anna O'Toole

Dennis Bartha

Margaret Shumaker

Ralph Glott

Herbert Wenger

Edward Mott

The Elementary Education curriculum is designed to permit the student to strengthen his background in academic areas as well as professional education. If courses are carefully selected, some specialization is possible in fields such as language arts and social studies. The course titles and descriptions are self-explanatory, and the student may use much freedom to build his own program.

An advisor is usually not selected until the student begins his research project. For his first few courses a student would probably wish to include a foundations course and one each from general and professional studies. Ed. 515, Elements of Research, should be taken by the time twelve credits have been earned. If a student needs guidance concerning his program before his advisor has been appointed, he should feel free to consult the chairman or any of the other department staff.

ELEMENTARY EDUCATION

Curriculum for Master of Education Degree

Students working for this degree in Elementary Education will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. General Studies—fourteen to eighteen (14 - 18) semester hours of work in General Studies to be selected from the following courses:

Art	521	Contemporary Movements in Art	2 s.h.
Bus	570	Economic Backgrounds of Business	2 s.h.
Ed	522	Principles and Practices in Speech Improvement	2 s.h.
Eng	521	Modern European Fiction	2 s.h.
Eng	523	The Development of Modern English	2 s.h.
Eng	525	The Early English Drama	2 s.h.
Eng	537	Modern American Poetry	2 s.h.
FL	521	Language and Society	2 s.h.
Geog	521	Advanced Human Geography	2 s.h.
HE	521	Problems in Family Living	2 s.h.
HPe	521	Advanced Seminar in Health and Safety	2 s.h.
HPe	530	Workshop in Community-School Health Education	2 s.h.
Math	521	Basic Concepts in Mathematics	2 s.h.
Mus	521	Music Literature and Materials	2 s.h.
Phil	581	Problems of Logic	2 s.h.
Phil	582	Problems of Ethics	2 s.h.
Phil	583	American Philosophic Thought	2 s.h.
SS	521	Contemporary American Issues	2 s.h.
SS	561	Social Policy Studies	2 s.h.

II. Professional Studies—eight to ten (8 - 10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed	516	Statistical Methods in Education I	2 s.h.
LRes	500	Seminar in Learning Resources	2 s.h.
Ed	534-		
	535	Diagnosis and Remediation in Reading-Theory and Clinical Practice	each 2 s.h.
Ed	550	Thesis	2 to 4 s.h.
El	531	Curriculum Problems in Elementary Education	2 s.h.
El	533	Reading Disabilities of Elementary School Children	2 s.h.

El	541	Special Problems in Elementary Social Studies	2 s.h.
El	542	Arithmetic in the Elementary School	2 s.h.
El	543	Resource Materials in Elementary Science	2 s.h.
El	544	Recent Trends in Elementary Language Arts	2 s.h.
El	545	Experimental Studies in Art Education	2 s.h.
El	546	Modern Procedures and Skills in Elementary Music	2 s.h.
El	547	Resource Materials in Children's Literature	2 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.
Psy	540	Advanced Mental Hygiene	2 s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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Course Descriptions

El 531 Curriculum Problems in Elementary Education 2 s.h.

The curriculum will be studied in relation to local needs and resources. Special attention will be given to contemporary forms of organization and procedures for curriculum development. A student will concentrate his studies on a specific problem of area interest. (Staff)

El 533 Reading Disabilities of Elementary School Children 2 s.h.

This course will consider the identification, causes, and correction of reading disabilities. The mechanics, psychology of reading, and emotional factors involved will be studied. (O'Toole)

El 541 Special Problems in Elementary Social Studies 2 s.h.

The content of the social studies in the elementary school as it contributes to world understanding and the American cultural heritage will be included in this course. Each student will concentrate his studies on a special problem or area of interest. (Mott)

El 542 Arithmetic in the Elementary School 2 s.h.

An overview of the development of arithmetic as a part of the elementary school curriculum will be presented. It will emphasize curriculum development based upon research in arithmetic, special problems in the teaching of arithmetic and the literature which should be known to a teacher of arithmetic. Prerequisite: The Teaching of Arithmetic. (Mathematics Staff)

El 543 Resource Materials in Elementary Science 2 s.h.

This course is designed to give the elementary teacher experience with the literature, equipment, and materials used in teaching science in the elementary school. References dealing with experiments, demonstrations, and identification of plants and animals will be studied. Experiments and demonstrations will be emphasized. Science kits will be prepared which contain basic equipment that may be used in classroom situations. Field trips will be taken to observe materials in real life situations. Given in summer school only. (Science Staff)

El 544 Recent Trends in Elementary Language Arts 2 s.h.

This course will deal with trends, problems, and recent contributions of research in the language arts. Areas will include elementary English, spelling, penmanship, and children's literature. Each student will concentrate his studies on a special problem or area of interest. (Staff)

El 545 Experimental Studies in Art Education**2 s.h.**

Teachers will undertake art experiences in various media as they are adapted to the provision of art experiences for the child. Emphasis will be placed on the stages of growth, type of motivation, and ways of administering stimuli. The class will study the exceptional child to learn to recognize and encourage evidences of art potential as well as wholesome self-expression. (Art Staff)

El 546 Modern Procedures and Skills in Elementary Music**2 s.h.**

The purpose of this course is to provide the elementary teachers with new developments and techniques recommended for music education. (Music Staff)

El 547 Resources Materials in Children's Literature**2 s.h.**

This course will be concerned with the selection and evaluation of children's literature as a resource for teaching and learning. Although traditional and modern literature in prose and poetry will be considered, much emphasis will be given to non-fiction. Ways will be studied to use these materials in the elementary school program. (Staff)

Internship In Elementary Education

For a limited number of Elementary Education graduates Indiana University of Pennsylvania is providing an internship program leading to the Master of Education degree.

The participant must first complete a Bachelor's degree in Elementary Education and hold a teaching certificate. He will enroll for a full summer of graduate study. During the following academic year he will spend one semester as a full-time professional teacher in a selected school system; during the other semester he will be a full-time graduate student on the Indiana campus. The second summer will be spent in completing the Master of Education requirements.

While the teacher is employed as a full-time professional teacher in a selected school system, he will have conferences on his professional work progress with a specialist from the University in which there will be a review of his work as a teacher. The (intern) teacher will be paid by the school district for one-half year at the usual rate for a professional teacher in that position.

The course work taken during the two summer sessions and the one full semester will be carefully selected to provide the maximum professional and personal benefit. This course work will meet the requirements for the Master of Education degree in elementary education and will fulfill permanent certification requirements.

Under internship conditions which entail conferences and follow-up study by an elementary education specialist from the University the teacher will, in effect, be earning a semester's salary as a professional teacher while completing work for his Master's degree.

For information regarding the fifth-year internship program for the Master's degree in elementary education, interested persons should write to Dr. P. D. Lott, Chairman of the Elementary Education Department, Indiana University of Pennsylvania, Indiana, Pennsylvania.

ENGLISH

James R. Green, Chairman

William Betts	Raymona Hull
L. J. Bright	Lawrence Ianni
David Cook	Dorothy Lucker
Robert Ensley	Maurice Rider
William Force	Helena Smith
William Grayburn	Margaret Stewart
Harry Haldeman	Craig Swauger

A candidate for a degree in English may choose a program leading to either the Master of Education or the Master of Arts. The choice will depend on the background of the candidate and his purpose in pursuing graduate study. Both programs share a common aim of increasing the candidate's knowledge of English language and literature and introducing him to the discipline of advanced study.

After a student is admitted to the graduate school he will be assigned an advisor who will consult with him about the scheduling of courses.

I. Research requirements

Candidates for both the Master of Arts and the Master of Education degrees in English will enroll in Eng. 510 (Bibliographical Methods in English - 2 hrs), as a first or a very early course in their degree programs.

A thesis seminar (Eng. 580 - 4 s.h.) is required of all Master of Arts candidates and may be elected by the Master of Education candidates to satisfy research requirements. It should be scheduled, in consultation with the student's advisor, after the completion of 16 semester hours or more of the course work required for the degree.

A Master of Education candidate who does not elect the Thesis Seminar will take 4 additional hours of course work and complete a research project without credit.

II. Subject Matter Concentration.

The following list of courses will provide the content studies for programs in both the Master of Education and the Master of Arts degrees.

From this list the M.A. candidate will choose from eighteen to twenty-four (18 - 24) hours; the M.Ed. candidate will choose from sixteen to twenty (16 - 20) hours, depending on the options elected for research, professional studies, or related studies.

Eng	512	American English Grammar	2 s.h.
Eng	521	Modern European Fiction	2 s.h.
Eng	522	Chaucer	2 s.h.
Eng	523	The Development of Modern English	2 s.h.
Eng	525	The Early English Drama	2 s.h.
Eng	526	Shakespeare and His Contemporaries	2 s.h.
Eng	527	Restoration and Eighteenth Century Drama	2 s.h.
Eng	528	Milton	2 s.h.
Eng	529	The Romantic Poets	2 s.h.
Eng	530	Tennyson and Browning	2 s.h.
Eng	531A	Major Writers: (Emerson, Thoreau, and Hawthorne)	2 s.h.
Eng	531B	Major Writers: (Faulkner and Hemingway)	2 s.h.
Eng	531C	Major Writers: (Hardy)	2 s.h.
Eng	531D	Major Writers: (Whitman and Twain)	2 s.h.
Eng	531E	Major Writers: (Poe and Melville)	2 s.h.
Eng	531F	Major Writers: (Henry James)	2 s.h.
Eng	531G	Major Writers: (Conrad)	2 s.h.
Eng	533	British Drama since 1880	2 s.h.
Eng	534	Types of the Novel	2 s.h.
Eng	535	Criticism	2 s.h.
Eng	536	Studies in Middle English and Renaissance Literature	2 s.h.

Eng	537	Modern American Fiction	2 s.h.
Eng	538	Victorian Prose	2 s.h.
Eng	539	The Metaphysical Poets	2 s.h.
Eng	540	Twentieth Century American Drama	2 s.h.
Eng	541	The Rise of American Regionalism	2 s.h.
Eng	542	Contemporary British Novelists	2 s.h.
Eng	544	Seminar in the Psychology of Language	2 s.h.
Eng	545	The Age of Pope	2 s.h.
Eng	555	Realism in the American Novel	2 s.h.
Eng	556	Modern British Poetry	2 s.h.
Eng	557	Modern American Poetry	2 s.h.
Eng	560	The Classics in Translation	2 s.h.
Eng	561	Tragic Themes of Classic Drama	2 s.h.
Eng	562	Epic and Lyric Poetry of the Classical Period	2 s.h.
FL	521	Language and Society	2 s.h.

III. Special M.Ed. requirements

In addition to satisfying the general policy for admission to the Graduate School, the M.Ed. candidate must possess a Pennsylvania Teacher's certificate in English or its equivalent from other states.

Professional Studies

The M.Ed. candidate will take from two to six (2 - 6) hours from the following list of courses:

Eng	511	Seminar in the Teaching of English in the Secondary School	2 s.h.
Eng	550	Workshop in Play Production	6 s.h.
Eng	570	Language	2 s.h.
Eng	571	Literature	2 s.h.
Eng	572	Composition	2 s.h.
Eng	573	English Institute	6 s.h.
LRes	500	Seminar in Learning Resources	2 s.h.
Ed	516	Statistical Methods in Education I	2 s.h.
Ed	531	Reading Problems of Junior and Senior High School Students	2 s.h.
Ed	534-	Diagnosis and Remediation in Reading-Theory and Clinical Practice	2 s.h.
Psy	535		
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.

Foundations of Education

Two (2) semester hours of work will be selected from the following courses:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

IV. Special M.A. requirements

Foreign Language

The candidate for the M.A. degree must show a proficiency in a single language besides English. This language may be one of the modern foreign languages or a classical language. Proficiency will be determined by submission of acceptable undergraduate credit of 12 hours in the language or by an examination administered by the foreign language department at Indiana.

Related studies

The M.A. candidate may apply a maximum of six hours in a single related field (such as history, philosophy, psychology or other areas approved by his advisor) toward satisfying his requirement of twenty-four hours of subject matter courses (see II above).

Course Descriptions

Eng 510 Bibliographical Methods in English 2 s.h.

This course offers the student practical training in the special methods and materials of research in English. Required of all majors in English and should be taken early in the program. (Staff)

Eng 511 Seminar in the Teaching of English in the Secondary School 2 s.h.

A seminar to explore the recent developments in the teaching of high school English. Open only to those holding a certificate to teach English. (Cook)

Eng 512 American English Grammar 2 s.h.

In this course a study is made of the analysis of language patterns by the methods of structural linguistics. Study is also made of the principles for establishing levels of usage. Both areas are examined for implications in the teaching of English. (Green, Ianni)

Eng 521 Modern European Fiction 2 s.h.

This course offers an intensive study in translation of the major fiction writers of the twentieth century exclusive of British and American. The older generation—Proust, Gide, Kafka, and Mann—will be studied in relation to representatives of contemporary Europe such as Camus, Moravia, Silone, and Sartre. (Lucker)

Eng 522 Chaucer 2 s.h.

The works of Geoffrey Chaucer are studied with special attention to the *Canterbury Tales* and *Troilus and Criseyde*. Pronunciation, versification, language, and textual problems will receive consideration. (Rider)

Eng 523 The Development of Modern English 2 s.h.

The course will study the origins and growth of the English language and the sources of English words. An examination will be made of the changes in English usage, with emphasis on the varieties of current spoken and written usage as a result of geographical, class, and situational differences. (Ianni, Green)

Eng 525 The Early English Drama 2 s.h.

The development of the English drama from 900 to 1500, with attention to classical and indigenous influences on specific plays and types of plays, will be studied. (Rider)

Eng 526 Shakespeare and His Contemporaries 2 s.h.

Plays by Shakespeare and some of his predecessors, contemporaries, and successors will be read. Plays will be chosen from the work of Marlowe, Llyl, Greene, Kyd, Jonson, Dekker, Beaumont, Fletcher, Webster, and Shakespeare. (Rider)

Eng 527 Restoration and Eighteenth Century Drama 2 s.h.

The British theatre from the Restoration period to Sheridan is studied in connection with the literary, historical, and social developments of the times. (Haldeman, Green)

Eng 528 Milton 2 s.h.

This course provides for special studies in the prose and poetry of John Milton, with attention paid chiefly to *Paradise Lost* and the lyrics. (Rider)

Eng 529 The Romantic Poets**2 s.h.**

This course will concentrate on the poetic values, religious conflicts, and social issues that affected the writings of the major Romantic poets. Practice will be given in analyzing form and tone as a guide to meaning. (Lucker)

Eng 530 Tennyson and Browning**2 s.h.**

This course provides for special studies in the poetry of Tennyson and Browning. Attention is given to the Victorian milieu and to the development of Tennyson's and Browning's philosophy as it is reflected in their work. (Betts)

Eng 531A Major Writers: Emerson, Hawthorne, and Thoreau**2 s.h.**

Emphasis is on a discussion of the ideas developed in *Walden*, *A Week on the Concord and Merrimac Rivers*, Emerson's Essays, First and Second Series, and several of Hawthorne's novels, as well as some of the shorter writings. Each student is responsible for investigating one particular area of comparison among the writers. (Hull)

Eng 531B Major Writers: Faulkner and Hemingway**2 s.h.**

This course considers the novels and short stories of William Faulkner and Ernest Hemingway, with attention to each writer's influence on modern fiction. (Swauger)

Eng 531C Major Writers: Thomas Hardy**2 s.h.**

Special studies are conducted in the poetry and fiction of a major writer of the late nineteenth century. (Betts)

Eng 531D Major Writers: Whitman and Twain**2 s.h.**

The course considers these writers in relation to the development of realism in American Literature. The poetry and prose of Whitman are studied intensively. Students read selected novels and short fiction by Twain. (Smith)

Eng 531E Major Writers: Poe and Melville**2 s.h.**

The course deals with romantic elements and symbolism in the fiction and poetry of Poe and Melville's major writings. Attention is also given to the influence of each writer on later fiction. (Hull)

Eng 531F Major Writers: Henry James**2 s.h.**

This course provides for extensive and analytical reading of short stories, novels and criticism of Henry James with attention to his influence on modern fiction as craftsman and critic. (Stewart)

Eng 531G Major Writers: Joseph Conrad**2 s.h.**

Study is concentrated in the seven major novels and in a variety of the short stories of Conrad. (Betts)

Eng 533 British Drama Since 1880**2 s.h.**

The modern temper in British drama is explored through modern British dramatists such as Pinero, Barrie, Milne, Maugham, Galsworthy, Priestly, Shaw, and some of the Irish Dramatists. (Force)

Eng 534 Types of the Novel**2 s.h.**

Standards are established for such genres of the novel as the Historical Romance, the Novel of Ideas, the Novel of Manners, and Satiric Fantasy. English and American novels are read in several of these categories. (Ianni)

Eng 535 Criticism 2 s.h.

This is a course in the principles of literary criticism. Attention will be paid to major works of critical theory and to practice in the application of these principles. (Ianni)

Eng 536 Studies in Middle English and Renaissance Literature 2 s.h.

This course is a seminar in which a major sociological or ideological tradition of the Middle Ages and Renaissance will be studied to reveal its influence upon the literature of those periods. Among the areas of learning and tradition which may be considered are the chivalric code; courtly love and love melancholy; Greek, Roman, and Hebrew literature and mythology, and medieval science and medicine. (Rider)

Eng 537 Modern American Fiction 2 s.h.

Trends in contemporary American fiction provide a basis for special studies in such figures as Dreiser, Anderson, Fitzgerald, Lewis, Dos Passos, and Wolfe. (Swauger)

Eng 538 Victorian Prose 2 s.h.

This course examines the major social, political, economic, and religious issues as revealed in the prose writings of the period. (Lucker)

Eng 539 The Metaphysical Poets 2 s.h.

The characteristic lyric poets of the seventeenth century from Donne to Cowley are studied in relation to changing social and political conditions. (Bright)

Eng 540 Twentieth Century American Drama 2 s.h.

The contributions of the major dramatists of the twentieth century to the development of the American theater are considered. (Force)

Eng 541 The Rise of American Regionalism 2 s.h.

This course considers writers who drew their materials from the culture peculiar to a particular area. Such local colorists as Page, Harte, Harris, and Jewett are read. (Smith)

Eng 542 Contemporary British Novelists 2 s.h.

This course deals with a group of novelists selected for the study of trends in British fiction since 1940. (Stewart)

Eng 544 Seminar in the Psychology of Language 2 s.h.

Individual investigation is encouraged in this seminar into the research in language as behavior. (Green)

Eng 545 The Age of Pope 2 s.h.

A close examination of the works of Alexander Pope and those of his contemporaries who most strongly influenced the rise of neo-classicism in England during the early 18th century. (Furguele)

Eng 550 Workshop in Play Production 6 s.h.

The study of various styles of production and of the principles of directing in the preparation of plays for a high school audience. Included will be analysis of the script, methods of casting and rehearsal, and the technical aspects of production. The summer theater is used as a laboratory for observation and participation. (One day of lecture and library work, four days of laboratory.) (Ensley)

Eng 555 Realism in the American Novel (Grayburn) 2 s.h.

This course examines the masterpieces of American realistic fiction from the late Romanticists through Mark Twain and to literary Naturalism.

Eng 556 Modern British Poetry 2 s.h.

This course provides a close examination of major twentieth century British poets: Hardy, Hopkins, Yeats, Owen, Auden, Spender. (Not open to those who have had Eng 524—Contemporary Poetry.) (Betts)

Eng 557 Modern American Poetry 2 s.h.

This course provides an intensive critical examination of the major twentieth century American poets from Eliot to the present. (Not open to those who have had Eng 524—Contemporary Poetry.) (Bright)

Eng 560 The Classics in Translation 2 s.h.

A survey of the chief Greek and Roman writers of epic, lyric and dramatic poetry, with historical background to be gained from the writers themselves and from illustrated lectures. Of interest especially to high school teachers of English who wish to enrich their background in classical literature and mythology. (Hull)

Eng 561 Tragic Themes of Classic Drama 2 s.h.

The influence of the works of Aeschylus Sophocles, and Euripides upon the classic dramatists of Italy and France. Not open to those who have already had Eng 560. (Hull)

Eng 562 Epic and Lyric Poetry of the Classical Period 2 s.h.

A study of the ILIAD, the ODYSSEY, the AENEID, the major figures in Greek lyric poetry, and the work of later Roman poets such as Horace, Ovid, and Catullus. (Hull)

Eng 570 Language 2 s.h.

The course has three principal aims: (1) to introduce the teachers selected for the Institute to the idea of language as a field of study and to the assumptions and methods of linguistics; (2) to furnish them with some indispensable knowledge about the English language; (3) to encourage them to undertake further study and guide them in pursuing it. The program for the course will include an introduction to language and language study, phonology, systems of syntax, linguistic variety and the problems of standard usage, and the history of English. (Staff)

Eng 571 Literature 2 s.h.

The aims of the course are to make the student aware of the power of literature to illuminate human experience and to give inexhaustible pleasure. These aims will be achieved by training in thoughtful and sensitive reading, supported by essential knowledge of the cultural context of literature. The teacher-student should gain skills in the use of metaphor, image, and symbol, awareness of point of view, analysis of structure, and semantic examination of meaning and tone. (Staff)

Eng 572 Composition 2 s.h.

The aim of the course is to help secondary school English teachers become better writers themselves and better critics of writing. The course will deal mainly with expository prose. Short essays will be written which the instructor will analyze and criticize for revision. Rhetorical analyses will be made of selections of prose by professional writers. (Staff)

Eng 573 Summer Institute in English 6 s.h.

M.Ed. candidates who may be accepted for a summer institute in English will be permitted to submit the six semester hours earned in such a program for completion of the requirements in Professional Studies.

Eng 580 Thesis Seminar 4 s.h.

The Research Seminar is required of all Master's candidates except those in Education who choose to satisfy the research requirement by reporting on a project. It may be elected by the student after he has completed 16 or more credit hours of the course work required for his degree. The seminar will be offered as a four credit course three times during the academic year, in the Fall and Spring semesters, and in the main summer session, and will be staffed on a rotational basis by the departmental graduate faculty. The major requirement of the course will be a significant piece of research writing in an area to be approved by consultation with the instructor; the paper, which should demonstrate a thorough grasp of those critical and bibliographic principles which are consonant with professional inquiry, will satisfy the research requirement for the master's degree. Admission to the seminar will be granted upon recommendation of the student's adviser.

FOREIGN LANGUAGES

Herbert Isar, Chairman

FL 521 Language and Society 2 s.h.

The work of this course is designed to inform the student as to the salient facts of language and its fundamental role in the development of continuity of society and culture. Some points considered are: language families and their characteristics, factors of linguistic change and development, reciprocal influences of culture and language, linguistic borrowing, language and religion, and systems of writing. (Bieghler, Isar)

FL 525 Foreign Study (I) 6 s.h.

Intensive study of the Spanish language and culture at the University of Valladolid, Spain, from approximately June 12 through August. For a detailed description see the Indiana University publication, **The Pennsylvania-Valladolid Study in Spain Program.** (Isar)

FL 526 Foreign Study (II) 6 s.h.

Continuation of FL 525 through the period September to approximately December 20. Intensive study of the Spanish language at the University of Valladolid with some attention to Spanish history, art, geography, and literature. Excursions and field trips to points of interest in Old and New Castile. (Isar)

NOTE: The 6 credits earned in FL 525 can be applied toward the Master's Degree at Indiana University, representing elective credits. The 6 credits earned in FL 526 cannot be applied toward the Master's degree, but will go on the permanent record of the candidate.

FL 525 and FL 526 are of exceptional interest and value to persons who have begun the teaching of Spanish in recent years.

GEOGRAPHY

Thomas G. Gault, Chairman

Mamie Anderzhon
Donald Ballas
Vincent Miller
James Payne
Paul Prince

Robert Thomas
Charles Weber
David Winslow
Maurice Zetur

The pursuit of a Master's Degree with a major in Geography presupposes that certain subjects normally included in the undergraduate major in geography have been successfully completed. The department, however, will accept applicants with limited background in Geography with the understanding that deficiencies will be made up, either through extra course work or through a personal reading program.

The Department invites students with a limited geography background to extend their general education through enrollment in geography as a related area. Students in Elementary, Social Science, Science, or Business may find geography courses closely related to their fields. The minimum prerequisite for entering all graduate geography courses in undergraduate World Geography (Geog. 101 or its equivalent).

Courses numbered above 540 have a prerequisite of six semester hours of geography and are not recommended for other than geography, social science, or science majors, but may be taken with written permission from the chairman of the department. Courses numbered above 580 require a prerequisite of 18 hours in geography.

The degree which a student should pursue will depend upon the personal objectives and the goal of the individual. The Master of Education (M.Ed.) degree is professionally oriented toward teaching as a career. The M.Ed. degree does not necessarily connote preparation for further study toward the doctorate.

The Master of Arts and Master of Science degrees are designed with knowledge of subject matter as the objective rather than its application to professional use. Although these degrees are complete programs they are also designed as preparation for further study toward the doctorate. The Master of Arts and Master of Science degrees differ both in their programs and in the background required.

The Master of Arts degree is designed for the student who is interested in the human, economic, and urban development of earth space.

The Master of Science degree is designed for the student with a strong mathematics and science background and who is interested in the study of the physical factors in the total environment.

Student working for the Master's Degree in Geography shall **complete a core program of 10 semester credits**. The candidate shall demonstrate competence in the core program outlined below. The competence shall involve a knowledge of content at the level of sound undergraduate courses and the maturity of judgement and interpretation appropriate to a serious professional student at the graduate level.

In addition to the core program, the student and his advisor will select a sequence of courses designed to meet the **student's needs or interest of at least 10 semester credits in geography**. Courses to strengthen the concentration may be taken outside the department with the consent of the advisor.

Further, each candidate must complete the research requirement as established by the Graduate Council. The candidate may meet this requirement either by **a thesis or a written research problem**.

The student will complete thirty (30) semester hours in accordance with the following divisions:

I. Subject Matter Concentration	minimum 20-24 s.h.
A. Core (required)	10 s.h.
1. Geog. 594 Field Techniques	2 s.h.
2. Geog. 589 Cartography for Thesis Writing	2 s.h.
3. Geog. 591 Geographic Thought I	2 s.h.
4. Geog. 592-593 Geographic Research I & II	1 s.h.
(M.Ed. candidates may take Ed. 515 Elements of Research in lieu of Geog. 593, with special permission)	
B. Student Interest (see departmental regulations)	10-14 s.h.
1. M.Ed. 10-14 s.h. of geography needed for teaching career and approved by advisor.	
2. M.A. 10-14 s.h. of related Geography courses under one heading: Human, Economic, Urban/Regional Planning as approved by advisor.	
3. M.S. 10-14 s.h. of related physical geography or earth science courses as approved by advisor.	
II. Related Studies	0-6 s.h.
Courses within or outside the department may be taken to strengthen the concentration. The consent of the advisor is required.	
1. M.Ed. take 6 s.h. of Education (2 s.h. from each of three categories below)	
a. Ed. 516 Statistical Methods in Education I	2 s.h.
LRes. 500 Seminar in Learning Resources	2 s.h.
c. Ed. 511 Historical Foundations of Education	
or	
Ed. 512 Philosophical Foundations of Education	
or	
Ed. 513 Social Foundations of Education	2 s.h.
d. Psy An Approved Psychology Course	2 s.h.
2. M.A. take 0-6 s.h. of related Social Sciences	
3. M.S. take 0-6 s.h. of related Sciences	
III. Research (in addition to core program)	0-4 s.h.
A. Geog. 599 Geography Research: Thesis	4 s.h.
or	
B. Geog. 598 Geography Research: Problem	0 s.h.

Course Descriptions

Geog 520 Physical Geography	2 s.h.
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A study of the development, classification, distribution and interpretation of landforms, climates, soils, natural vegetation, underground resources, and water resources. The interrelationships among the elements of the physical environment will be stressed as a foundation to the understanding of man's role in geographic analysis. Earth-sun relationships and map projections are included.

Geog 521 Advanced Human Geography	2 s.h.
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The course is designed as a refresher course in geography for the non-geography major. Both systematic and regional studies will be made to acquaint the student with modern geography methods and techniques. (Gault, Ballas)

Geog 522 Aerospace Science**2-3 s.h.**

This workshop will be conducted as a seminar with a number of visiting aerospace authorities. Topics included are: atmosphere and space environment; history of flight and flight problems; satellites and space probes; manned orbital and space exploration projects; propulsion, communication, and other systems. Problems of teaching and bibliography at the various elementary and secondary levels will be considered. An indoctrination flight in a small craft and field trips to air age installations and projects fortify learning. (Winslow)

Geog 523 Urban Geography**2-3 s.h.**

An analysis is made of city types, patterns and functions as influenced by geographic conditions and other factors. City planning techniques and field study are utilized. (Winslow)

Geog 524 Cultural Geography**2 s.h.**

This course will study the literature and methods of cultural geography. Topics to be studied include population, settlements, human ecology, culture areas, and related features. Individual study, analysis and reports will be stressed in addition to lecture. (Ballas)

Geog 525-540 Geography Regional Seminars**ea. 2-3 s.h.**

(Prerequisite: 6 semester hours of geography)

Seminars are designed to let the student develop to his greatest potential. Each region is examined in detail for soil, topography, climate, vegetation, population, and the interrelationships evolved. Great stress is placed on individual study and class discussion rather than lectures.

Geog 525 Africa, South of Sahara (Ballas)**Geog 526 India, Pakistan and Indo-Chinese Peninsula (Weber)****Geog 527 Mexico, Middle American and West Indian Islands (Winslow)****Geog 528 South America (Thomas)****Geog 530 U.S.S.R. (Zacur)****Geog 531 Northwestern Europe (Miller)****Geog 532 Mediterranean World (Weber)****Geog 534 China, Korea and Japan (Weber)****Geog 535 Australia and Pacific Islands (Anderzhon)****Geog 536 Polar Regions (Miller)****Geog 537 Eastern United States (Payne)****Geog 538 Western United States (Payne)****Geog 539 Canada (Gault)****Geog 540 Geography of Pennsylvania (Zacur)****Geog 541 Agricultural Geography****2-3 s.h.**

World Agricultural patterns are the core of this course. Specific problems will be studied in view of both of the countries involved and world environment. Stress will be placed upon individual study and research as well as classroom lecture. (Gault)

Geog 542 Industrial Geography

2-3 s.h.

Resources useful in the manufacturing process will be studied both as to their location and their place in the international exchange patterns of the world. Individual problems will be the core of the course placing great emphasis on research and reading. (Winslow)

Geog 550A-550B Geographic Readings in Geography (offered every semester on an individual basis by arrangement made through the chairman of the department.) (Canlt) 2-4 s.h.

550A consists of reading widely in the field of geography. Emphasis is upon knowledge in the classics in the field. Study will be individual and stimulates the student to become critical in his reading and study.

550B consists of reading upon a particular topic or region. Emphasis is upon knowledge and understanding of a selected area of study. Study will be individual and encourages the student to become more expert with a small area of learning.

Geog 551 Professional Problems in Geographic Education 2-3 s.h.

Classroom problems and discussion centered about "New Viewpoints in Geography" constitute the core of this course. Individual reports, group discussion and research will constitute the principal methods of presentation. (Anderzhon)

Geog 552 Seminar in World Resources 2-3 s.h.

World resources exploitation and utilization of the agricultural, mineral, forestry, and fishery industries are treated. Problems, such as energy utilization, food distribution, population growth, regional planning, factory location, conservation measures, and foreign trade, are considered. (Weber)

Geog 553 Political Geography 2-3 s.h.

Geographic factors and conditions are analyzed as they are related to the character and function of states. Political institutions are evaluated in light of modern and historic geographic conditions. Emphasis is given to the great world powers and geopolitical thought. (Miller)

Geog 570-1 Physical Oceanography I & II 2-4 s.h.

Prerequisite to Oceanography I: Mathematical Analysis, Physics I & II, General Chemistry)

Physical properties, processes and the theory of the distribution of variables in the sea. Mass and energy budgets. Cause, nature, measurements, analysis and prediction of tidal currents and surface waves. Characteristics of currents and of forces that establish and modify them. Oceanography I is prerequisite to Oceanography II. (Prince)

Geog 572 Theoretical Meteorology 2-3 s.h.

(Prerequisite: Fundamentals of Mathematics, Physics I & II, Meteorology I)

Basic and advanced considerations of the physical processes of the atmosphere. Parameter and instrument considerations, composition and structure of the atmosphere, radiation laws, temperature patterns, stability of the air, isentropic analysis physics of clouds, circulation phenomena, barotropic and baroclinic modes, storm structures, atmospheric electricity. Incorporates theoretical considerations of Rossby, Palmen, Wilson, Bowen, Bergeron, Byers. (Prince)

Geog 588 Physiography of United States

2-3 s.h.

This course presents a detailed study of the landforms and surface waters of the United States. The origin, classification, and structure of mountains, plains, hills, coast lines, rivers, lakes are discussed as well as the agents causing their birth and subsequent modification, agents such as glaciers, stream erosion, wind abrasion, tides and ocean waves. (Payne)

Geog 589 Cartography for Thesis Writing

2-3 s.h.

This course develops an ability to compile maps and diagrams for the illustration of place location, areal distribution, and statistical data in thesis or professional papers. Special maps, charts, and diagrams will be considered as required by the individual student. (No prerequisite) (Payne)

Geog 590 Maps and Photographic Interpretation

2-3 s.h.

Maps and aerial photographs enable the geographer to correctly grasp the spatial perspective of the landscape; they enable him to garner much geologic, economic, land use, transportation, strategic information quickly without costly, lengthy field trips. The course is designed to develop skill in extracting the foregoing information and to synthesize these data into geographical relationships. (Payne)

Geog 591 Geographic Thought I (Staff)

2-3 s.h.

The history of the discipline, great ideas of geography, leading professionals, and unresolved issues will be considered. Stress will be upon individual research. Lectures and seminar presentation will be dominant.

Geog 592-3 Geographic Research I & II

2-4 s.h.

Prerequisite: Geog 591 or six hours of graduate work in geography

Research in the area of geographical knowledge embraces field and bibliographical studies as well as introduction to authoritative sources. It includes familiarization with geographical concepts, geographic techniques, laboratory and field procedures, and utilization of instruments and devices. (Winslow)

Geog 594 Field Techniques in Geography

2-3 s.h.

Field technology is discussed and evaluated. The use of field tools and techniques are used in the study of a specific area. Emphasis is upon skill and interpretation of aerial patterns of geographic phenomena. (Winslow)

Geog 595 Regional Field Studies

3-6 s.h.

Students are taken into the field to observe and to analyze the geographical relationships which exist between various physical and cultural phenomena. Various regions of North America to be visited are selected on the basis of landscape diversity. Study may emphasize either physical or cultural geography and the student should contact the Geography Department prior to the semester of enrollment as to the exact region to be studied and the costs involved. (Staff)

HEALTH - PHYSICAL EDUCATION

John Chellman, Chairman
Owen J. Dougherty

HPe 521 Advanced Seminar in Health and Safety

2 s.h.

This course provides the student with current health and safety information and defines its relation to the needs of the school child, the home, the community, and the school. It emphasizes the application of health and safety instruction to the modern principles of education, and provides the student with concrete materials to help plan and implement an effective health and safety instructional program. The course is geared toward the particular health and safety problems that relate to the students in the class. (Chellman)

HPe 530 Workshop in Community School Health Education 2 s.h.

This workshop is concerned with school, community and public health as they relate to the interests of the workshop participants. Areas studied include mental health, nutrition, dental health, physical education, health services, environmental health, changing health patterns and health statistics. Teaching methods, special projects, consultations, visitations, discussions and sources of information and materials will be considered.

Credit for this workshop may be used in the general studies area of the elementary curriculum and, subject to the approval of the department chairman or program advisor, as an elective in all other programs. (Chellman, Daugherty)

HOME ECONOMICS**HE 521 Problems in Family Living** 2 s.h.

Transportation, communication, and technological advances with labor saving and other devices are bringing so many possibilities and changes to the home that it is necessary constantly to challenge the home's adjustment. The course will utilize knowledge and research from science, medicine, technology, sociology, economics, art and psychology in being better able to: provide food, shelter, clothing, utilize time, energy, and material resources; and increase day to day satisfactions in living. Seminars and the problem solving method will be used.

LEARNING RESOURCES AND MASS MEDIA

Curriculum for Certification as a Learning Resources Specialist

Norman W. Sargent, Chairman

J. Robert Murray Donald M. MacIsaac William McCavitt

The graduate program in Learning Resources and Mass Media is designed primarily to offer the student certification as a Learning Resources Specialist. Certificates will be granted to students who complete the following requirements:

1. Hold a permanent college certificate valid for elementary or secondary education.
2. Complete 24 semester hours of graduate work in the curriculum of Learning Resources and Mass Media and related subjects as outlined in the curriculum for certification as a Learning Resources Specialist.

Any student seeking permanent college certification and/or working toward a Master's degree within the graduate school may, with the approval of his adviser, his department chairman, and the chairman of the Department of Learning Resources and Mass Media, elect up to ten semester hours from the Learning Resources curriculum. These credits may then be applied toward certification as a Learning Resources Specialist. Students not in the educational profession (i.e., business or industry) and who otherwise meet the admission requirements for graduate school may pursue the program for Learning Resources Specialist and upon completion of the requirements may be granted a special Certificate of Proficiency by the University.

A student who presents proof of competency in one or more of the basic courses in the curriculum may, with the approval of his adviser, and the department chairman, elect another course from the Learning Resources curriculum or from some other curriculum in the University. Up to six of the 24 hours required for certification must be taken as an internship program as approved by the University.

For the student to become competent for this certification, he, in conjunction with his adviser, the department chairman, and the Dean of the Graduate School, will select a balance of courses from the following areas:

1. Learning theory relative to learning resources and communications (LRes 500-515)
2. Fundamentals of library science (LRes 530)
3. Production and utilization of learning resources (LRes 540-551)
4. Organization and operation of learning resources centers (LRes 560-569)

LRes 500 Seminar in Learning Resources**2 s.h.**

An introductory course to the area of Learning Resources. Major emphasis will be placed upon the differences among learning, materials, learners and teaching methods. The student will have the opportunity to do literary research for a better understanding of how Learning Resources are related to the learning process in our modern society. (Murray, Sargent) (Students who have taken Ed 518, Seminar in Sensory and Audio-Visual Materials, should not schedule this course.)

LRes 501 The Classroom Use of Motion Pictures**2 s.h.**

Develops a basis for the critical evaluation of films for various educational purposes. Emphasis will be placed upon an understanding of production techniques, stereotypes, prejudices, and misconceptions which influence the quality of educational films, and upon the methods of selection, acquisition, evaluation and distribution of films. (MacIsaac)

LRes 502 Programmed Learning in Education**2 s.h.**

Will cover historical development, theory and philosophy, auto instructional equipment, programmed texts, theories of programming, types of programs available, analysis and evaluation of research. (Sargent)

LRes 503 Writing for A-V Production**2 s.h.**

Provides an introduction to script writing for films and filmstrips. Various styles and techniques of writing will be analyzed and each student will be expected to experiment with the techniques presented. Emphasis will be placed on writing and upon criticism, in class, of student scripts. (McCavitt)

LRes 504 Foundations of Broadcasting**2 s.h.**

An examination of the historical, legal, and economic aspects of modern broadcasting. Extensive readings in fundamental theory and a study of current station and network practices, educational as well as commercial. (McCavitt)

LRes 505 Role of Learning Resources in Broadcasting**2 s.h.**

A study of the effective use of learning resources for the most beneficial learning situations in radio and television broadcasting. Will give the student the opportunity to concentrate on the theory of communication, psychology of audience variability, picture primary, protagonist prestige, level of verbalization, etc. (McCavitt)

**LRes 506 Evaluation of Research in Educational Effectiveness
of Mass Media****2 s.h.**

Will offer the opportunity to examine and evaluate the research and research findings of significant studies and summaries of studies in areas of mass media. Only the educational implications of the studies will be considered. Students may have the opportunity to concentrate upon one area of interest, as motion pictures, television, radio, journalism, etc. (Staff)

LRes 507 Seminar of Current Problems in Broadcasting 2 s.h.

An examination of current developments in the field. The national press and trade publications are used as texts and some experience is given in locating the sources of much needed and frequently used television information. (McCavitt)

LRes 508 Advanced Techniques in Utilization of Learning Laboratories 2 s.h.

Will investigate the use of language labs in all areas of the curriculum, the use of dial access retrieval systems, computer based instruction, and other self-instructional techniques. (Staff)

LRes 509 Programming of Multi-Media Materials 2 s.h.

Will investigate practical ways of combining a variety of media into an effective teaching-learning situation. (Sargent)

LRes 515 Role of Learning Resources-Theoretical and Research Foundations 2 s.h.

Examines the role of perception as pertains to sensory experiences and inner cognitive processes in relationship to maturation, goals and drives, and environment. Seeks to relate psychological processes to learning resources, with emphasis on the newer media. (Staff)

LRes 530 Classification and Cataloging of Learning Resources 2 s.h.

Principles of classifying and cataloging learning resources, such as motion pictures, video tapes, filmstrips, slides, transparencies, disk and tape recordings, microfilm, microcard and microfiche, flat pictures, etc. For learning resources administrators and librarians. (Library staff)

LRes 540 Preparation of Learning Resources 2 s.h.

Introductory course to the preparation of a wide variety of classroom materials, in which building coordinators, as well as others, can assist teachers—lettering, coloring, mounting, bulletin boards, feltboards, and the preparation of pictures, maps, posters, charts, and graphs for projected and non-projected use. (Staff)

LRes 541 Photographic Fundamentals for Educational Materials 2 s.h.

Emphasis will be placed on the use of the still picture camera and the darkroom for instructional purposes, the making of b/w negatives, 35mm slides, copywork, developing b/w and color film, and b/w contact printing and enlarging. Each student must furnish his own 35mm camera and an acceptable exposure meter. No previous photographic experience is necessary. (Staff)

LRes 542 Preparation of Transparencies 2 s.h.

Covers the various methods of producing transparencies larger than 35mm slides starting with the Polaroid system for $3\frac{1}{4} \times 4"$ slides as well as regular photography; the use of photocopying machines; addition of color using a variety of materials and techniques; methods of lettering; techniques in transferring printed materials to transparencies; and the latest techniques and materials available in this area of production. (Staff)

LRes 543 Slide and Filmstrip Production for Education**2 s.h.**

Prerequisite: Photographic Fundamentals. This course emphasizes the techniques of color and b/w slide preparation, duplication, titling and binding; it will introduce the techniques necessary to produce color filmstrips on a commercial basis, and students will participate in the making of a filmstrip through all stages, from script to screen. Techniques for making home-made filmstrips will also be explored. Each student must furnish his own 35mm camera, and an acceptable exposure meter. (Staff)

LRes 544 Beginning Cinematography for Education**2 s.h.**

Emphasis will be placed on the effective use of the motion picture camera and editing tools to make useful, locally produced teaching films. No previous experience is necessary, but the student should own or have access to an 8mm or 16mm camera, and an acceptable exposure meter. (MacIsaac)

LRes 545 Advanced Motion Picture Production for Education**2 s.h.**

Prerequisite: Beginning Motion Picture Production. This course will emphasize production planning for motion pictures, directing, advanced picture and sound editing techniques, and the use of sound recording and laboratory facilities. In addition to live action cinematography, titling, animation, and special effects photography will be investigated. (MacIsaac)

LRes 546 Motion Picture Production Workshop**2 s.h.**

Prerequisites: Beginning Cinematography, Advanced Cinematography, and Writing for A-V Production. Students will work as a team to shoot, edit, and sound a 16mm motion picture under the supervision of the instructor. Each student will have the opportunity to work variously as cameraman, assistant cameraman, director, assistant director, unit manager, sound recordist, script secretary, editor, mixer, etc. (Staff)

LRes 547 Animation**2 s.h.**

Introduces a variety of motion picture animation techniques, and offers practical experience in planning and carrying out the production of animated sequences. A wide variety of films will be viewed and discussed; experimentation in class and through projects with filmograph, cut-out animation, puppet animation, and full cell animation. Practice in designing, drawing, tracing, inking, and painting cells; preparation of backgrounds, use of celluloid, animation camera and animation stand; preparation of story boards and cue sheets; integration of visual and sound. (MacIsaac)

LRes 548 Writing for Radio and Television**2 s.h.**

For teachers, school administrators, and non-school persons interested in public service, non-professional, or educational broadcasting. Presents theory and practice in planning, writing, and producing various kinds of programs for listeners in and out of schools. Educational and/or radio experience is desirable but not required. (McCavitt)

LRes 549 Television Production and Direction**2 s.h.**

An intensive laboratory course using closed circuit facilities designed to develop skills in program production and direction. Theory and practice of production is examined, with each student expected to produce a television program during the course. (McCavitt)

LRes 550 Advanced Audio Recording Techniques 2 s.h.

Theory and practice of recording sound for motion pictures, video tapes, audio tapes, sound filmstrips, etc. Will use sound on sound and other special recording techniques. (Staff)

LRes 551 Advanced Techniques in Transparency Production 2 s.h.

Will provide opportunities to design and produce complex multi-color transparencies and simulated motion through specialized techniques. (Staff)

LRes 560 Management of Learning Resources Program 2 s.h.

Considers the problems in setting up and managing an integrated program, including production, selection, utilization, and management of Learning Resources Centers; problems of finance; function and organization of the different services; relationships among school systems, colleges, and community and adult groups; and evaluation standards for the various services. (Murray)

LRes 568 Research Methods and Theory in Learning Resources 2 s.h.

Examines research techniques for application to investigations in the areas of learning resources administration, analysis of media content and audience characteristics, and effects of educational and commercial communications. Also will consider problems in writing proposals for federal research grants and for ESEA grants. (Staff)

LRes 569 Internship Program of Learning Resources Specialists 2-6 s.h.

A program in which a candidate would work in a carefully planned variety of roles in a comprehensive regional learning resources center or similar situation, television broadcasting or closed-circuit facility, motion picture production agency, programmed learning development organization, learning resources workshop program, little theater group, major museum or approved equivalent, under competent university and agency supervision, and would be rated by both the cooperating agency and the university.

MATHEMATICS

James E. McKinley, Chairman

Arms	Morrell
Bailey	Oakes
Crooks	Peters
Gibson	Reigh
Hennemann	Shafer
Klemm	Simmons
Maple	Smith
D. McBride	Somers

Curriculum for Master of Education Degree

The major purposes for this degree are: (1) to prepare mathematics teachers for more adequate service in the secondary school; (2) to provide the students with some depth of training in analysis and to provide some breadth of training by studying some courses in algebra and geometry; (3) to provide the students the opportunity to critically examine the curricula of the junior and senior high schools; and (4) to involve the students in either some meaningful research in mathematics education or some research in mathematics.

Each student admitted to the Graduate School will be assigned an adviser in the Mathematics Department. All courses must be approved by the adviser. Failure to have courses approved may result in the necessity to take additional courses.

It is recommended that graduate students begin their research early in their graduate program. As soon as the course Elements of Research is completed, request from the Chairman of the Mathematics Department that a research adviser be assigned. This adviser will likely be a different person than the course adviser.

Students working for this degree with a major in Mathematics will complete a minimum of thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — fourteen to twenty-two (14 - 22) semester hours of work in subject matter content are to be selected from the following courses in which the student must take at least one two-semester sequence from each of "Analysis" (other than Math 529-530) and "Algebra"; and at least one course from each of the headings, "Geometry" and "Additional Courses."

ANALYSIS

Math 526	Fundamental Concepts of Analysis	2 s.h.
Math 529	Differential Equations I	2 s.h.
Math 530	Differential Equations II	2 s.h.
Math 531	Advanced Calculus I	2 s.h.
Math 532	Advanced Calculus II	2 s.h.
Math 533	Functions of a Complex Variable I	2 s.h.
Math 534	Functions of a Complex Variable II	2 s.h.
Math 535	Functions of a Real Variable I	2 s.h.
Math 536	Functions of a Real Variable II	2 s.h.
Math 539	Infinite Series I	2 s.h.
Math 540	Infinite Series II	2 s.h.
Math 543	Vector Analysis I	2 s.h.
Math 544	Vector Analysis II	2 s.h.

ALGEBRA

Math 552	Number Theory	2 s.h.
Math 560	Foundations of Algebra	2 s.h.
Math 561	Abstract Algebra I	2 s.h.

Math	562	Abstract Algebra II	2 s.h.
Math	563	Linear Algebra I	2 s.h.
Math	564	Linear Algebra II	2 s.h.
Math	565	Theory of Groups	2 s.h.

GEOMETRY

Math	571	Modern Geometry I	2 s.h.
Math	572	Modern Geometry II	2 s.h.
Math	575	Projective Geometry I	2 s.h.
Math	576	Projective Geometry II	2 s.h.

ADDITIONAL COURSES

Math	570	Point Set Theory	2 s.h.
Math	573	Topology	2 s.h.
Math	580	Logic	2 s.h.
Math	581	Mathematical Statistics	2 s.h.
Math	582	Theory of Probability	2 s.h.

II. Professional Studies—four to ten (4 - 10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

LRes	500	Seminar in Learning Resources	2 s.h.
Ed	550	Thesis	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.
Math	510	Seminar in Mathematics I (Jr. H. S. Mathematics)	2 s.h.
Math	511	Seminar in Mathematics II (Sr. H. S. Mathematics) ..	2 s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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V. Elective Courses—Cannot count in minimum requirements of concentration area but may count toward degree.

Math	501	Digital Computer Programming (FORTRAN)	2 s.h.
Math	502	Digital Computers and Compiler Systems	2 s.h.
Math	503	Seminar: Computer Applications in Research	2 s.h.
Math	507	Numerical Analysis	2 s.h.

Master of Science

The major purpose of this degree is to provide the students with a rigorous course of training in graduate level mathematics (I) which can be used as preparation for advanced degrees, or (2) which can be used as basic preparation for specialization in applied mathematics, or (3) for a terminal degree in mathematics. An essential feature of this degree program is a mathematics research paper.

Each student who has been accepted in this program will be assigned a course adviser from the Graduate School Mathematics Staff. Course approval is required. Failure to receive course approval from the designated adviser may result in loss of credit.

After the course Research Mathematics I has been completed, each student should request a research adviser from the Chairman of the Mathematics Department. This adviser may be a different person than the course adviser.

Students working for this degree will complete thirty (30) credit hours of work in accordance with the following plan:

I. Subject Matter Concentration Area 18-26 s.h.

Before being admitted to candidacy for the degree students must successfully complete 14 s.h. of work in mathematics courses as follows:

Math	531-532	4 s.h.	Advanced Calculus I and II
Math	533	2 s.h.	Functions of a Complex Variable I
Math	561-562	4 s.h.	Abstract Algebra I and II
Math	563-564	4 s.h.	Linear Algebra I and II

If some of these courses have been completed satisfactorily by a student in his undergraduate preparation, then a suitable higher level course in the same area should be substituted, as approved by the student's faculty adviser.

In addition to the above courses, students must complete at least two of the following courses. In the case of a level II course, it is to be understood that the level I course has already been successfully completed either at the undergraduate or graduate level. Credit for the level I course taken as a graduate course will be given toward the required number of s.h. for the degree, with the approval of the faculty adviser.

Math	530	2 s.h.	Differential Equations II
Math	534	2 s.h.	Functions of a Complex Variable II
Math	565	2 s.h.	Theory of Groups
Math	572	2 s.h.	Modern Geometry II
Math	574	2 s.h.	Topology II
Math	576	2 s.h.	Projective Geometry II
Math	584	2 s.h.	Mathematical Statistics I

(Prerequisite for this course is Math 582)

Following is a list of all courses offered by the Mathematical Department that will be accepted as credit toward the M.S. Degree. This includes all those previously mentioned, as well as noting additions and revisions in name or number of some existing courses.

Math	501, 502, 503	Computer Courses
Math	507	2 s.h. Numerical Analysis (to be added as a new course)
Math	526	2 s.h. Fundamental Concepts of Analysis
Math	529-530	4 s.h. Differential Equations I and II
Math	531-532	4 s.h. Advanced Calculus I and II
Math	533-534	4 s.h. Functions of a Complex Variable I and II
Math	535-536	4 s.h. Functions of a Real Variable I and II
Math	539-540	4 s.h. Infinite Series I and II
Math	543-544	4 s.h. Vector Analysis I and II
Math	552	2 s.h. Number Theory
Math	561-562	4 s.h. Abstract Algebra I and II (Name of course changed)
Math	563-564	4 s.h. Linear Algebra I and II
Math	565	2 s.h. Theory of Groups
Math	571-572	4 s.h. Modern Geometry I and II
Math	573-574	2 s.h. Topology I and II (Topology II is a new course)
Math	575-576	4 s.h. Projective Geometry I and II
Math	580	2 s.h. Logic
Math	582	2 s.h. Theory of Probability
Math	584-585	4 s.h. Mathematical Statistics I and II (Number of Mathematical Statistics I is being changed from 581 to 584 and a Mathematical Statistics II is being added)

II. Related Studies 0-4 s.h.

A maximum of 4 s.h. in courses offered by departments other than the mathematics department, but related to it, may be credited toward the M.S. Degree with major in mathematics with permission of the faculty adviser.

III. Research Requirement 4-8 s.h.

A course in research in mathematics is required of all students, the purpose of which is to acquaint students with the mathematics literature and to develop skill in the use of this literature. Students will prepare a proposal for independent study or research to be pursued as a follow-up to this course. 2 s.h. will be granted for the successful completion of the course. A minimum of 2 additional s.h. in this area will be required. 2 s.h. credit will be granted if a student completes a written paper, after independent study with faculty guidance, on some area of mathematics that has not been studied in the regular course offered, and that has been deemed acceptable by the designated member or members of the Mathematics Staff. If the proposal made by the student in the Research course is acceptable as satisfactory for thesis work, a maximum of 6 s.h. beyond the Research course may be granted after successful completion of the proposed study.

The course in Research should be taken at or near the completion of the basic 14 s.h. of mathematics listed in part I.

Course Descriptions**Math 501 Digital Computer Programming (FORTRAN) 2 s.h.**

Principles of programming electronic digital computers; development of programs in the FORTRAN language; compilation and execution on College computer. (Elective—does not apply toward minimum requirements for concentration in Mathematics.)

Math 502 Digital Computers and Compiler Systems 2 s.h.

Development of digital computers; description of present day computers and the symbolic programming and compiler systems available for program development. (Elective—does not apply toward minimum requirements for concentration in Mathematics.) Prerequisite: Math 501.

Math 503 Seminar: Computer Applications in Research 2 s.h.

Description of general techniques to facilitate processing of research data on a digital computer; special attention to individual research problems of class members. (Elective—does not apply toward minimum requirements for concentration in Mathematics.)

Math 507 Numerical Analysis 2 s.h.

This course is concerned with techniques of employing computers to solve problems. The topics covered will include approximation of functions by Taylor Series, iterative methods of solving equations, solutions of systems of equations, interpolation, numerical differentiation and integration, and numerical solution of ordinary differential equations.

**Math 510 Seminar in Mathematics I
(Junior High School Mathematics) 2 s.h.**

This course will acquaint the student with recommended curricula for the 7th, 8th, and 9th grades in Mathematics. Emphasis will be placed on programs for the slow, the average, and the gifted learners. Students will work on individual projects. Prerequisite: Permission of instructor.

**Math 511 Seminar in Mathematics II
(Senior High School Mathematics) 2 s.h.**

This seminar will acquaint the student with recommended curricula for the 10th, 11th, and 12th grades in Mathematics. Emphasis will be placed on updating curricula. Special attention will be given to teaching topics of equations, inequalities, sets, functions, relations, and a modern approach to the teaching of geometry and trigonometry at the secondary school level. Prerequisite: Permission of instructor.

Math 521 Basic Concepts in Mathematics 2 s.h.

This course aims to develop an understanding of mathematics as a system of thought and will include such topics as kinds of number, scales of notation, the nature of arithmetic operations, basic principles of general numbers and measurements, the history and development of number and some of the contributions to our civilization, and elementary discussions of mathematics developed in the past one hundred years. (Open only to non-mathematics majors.)

Math 526 Fundamental Concepts of Analysis 2 s.h.

This course will examine critically some of the fundamental ideas and techniques of proof of mathematical analysis which should precede any rigorous treatment of calculus, topology, or complex variables. Concepts studied will include limits, derivatives, and integrals as well as the structure of the real number system, completeness, and the construction of the irrational numbers from the rational numbers.

Math 529-530 Differential Equations I, II 4 s.h.

These courses deal primarily with the solution of differential equations of the first and second order and linear equations with constant coefficients, with applications to geometry and physics.

Students with a satisfactory background in Differential Equations may take Math 530 and omit Math 529.

Math 531-532 Advanced Calculus I, II 4 s.h.

These courses are the basis for advanced analysis. Topics include structure of the real number system, functions, sequences, limits, continuity, differentiation, integration, infinite series of constants, and power series.

Math 533-534 Functions of a Complex Variable I, II 4 s.h.

These courses include a study of the properties of complex numbers and functions, including: analytic and elementary functions the Cauchy-Coursat integral theorem, contour integrals, power series, residues and poles, conformal mappings Schwarz-Christoffel transformation, and analytic continuation. Prerequisite: Math 531.

Math 535-536 Functions of a Real Variable I, II 4 s.h.

These courses develop further the topics of Math 531 and 532. Point sets, uniform continuity, Stieltjes integration, uniform convergence, and functions of several variables are among the topics discussed. Prerequisite: Math 532.

Math 539-540 Infinite Series I, II 4 s.h.

A development of the theory of the convergence of series. Among the topics considered are: sequences; series of positive, arbitrary, and variable terms; double series, power series, types of convergency and the associated operations with series. Prerequisite: Math 532.

Math 543-544 Vector Analysis I, II 4 s.h.

These courses will include the algebra and calculus of vectors with applications.

Math 552 Number Theory 2 s.h.

Topics considered will include: elementary properties of integers, Euclidean algorithm, Prime Numbers, Divisibility, Congruences, Residues and Diophantine equations.

Math 560 Foundations of Algebra 2 s.h.

This course is designed to acquaint the student with the axiomatic structure of algebra. It includes an introduction to the theories of groups, rings, integral domains, and fields. Mathematical models for these theories are taken from the systems of natural numbers, integers, rational numbers, real numbers, complex numbers, finite arithmetic and vector spaces. Prerequisite: Permission of the instructor.

Math 561-562 Abstract Algebra I, II 4 s.h.

This course is designed to continue the study of the axiomatic structure of algebra to which the student has been introduced in previous courses. This will consist of an intensive study of the properties of groups, rings, ideals, integral domains and fields. Vectors and vector spaces, the theory of matrices and linear transformations, linear spaces and linear and bi-linear forms will be studied. Prerequisite: Math 560 or permission of the instructor.

Math 563-564 Linear Algebra I, II 4 s.h.

Theory of vector spaces and linear transformations. Matrices and determinants. Introduction to linear algebras. Prerequisite: Math 561.

Math 565 Theory of Groups 2 s.h.

Abstract group theory with emphasis on finite groups, quotient groups as a basis for Galois Theory; derived groups, nilpotence, extension, and products will be considered. Prerequisite: Math 561.

Math 570 Point Set Theory 2 s.h.

This course is a study of the basic concepts of set theory. The course includes a brief discussion of logic and proof followed by the essentials of set theory, the set approach to relations and functions, finite and infinite sets, and cardinal and ordinal numbers. This course serves as a partial basis for advanced courses.

Math 571-572 Modern Geometry I and II 4 s.h.

A systematic analysis of geometry through a study of axiomatic, synthetic, and analytic projective geometry. Affine, Euclidean, and non-Euclidean geometries are obtained by successive restrictions of projective transformations.

Math 573 Topology 2 s.h.

An introduction to point set topology and those properties of topological spaces invariant under homeomorphisms such as compactness, connectedness, etc.

Math 575-576 Projective Geometry I, II 4 s.h.

Discussions will concern: projection and section, ideal elements, projectively related forms, harmonic sets and resulting metric properties, polarity, involution, and conic sections from a projective standpoint.

Math 580 Logic 2 s.h.

An introduction to symbolic logic, including quantification theory, and its value in determining the validity of mathematical arguments.

Math 581 Mathematical Statistics 2 s.h.

The theory of modern statistical analysis will be developed and used in the solution of practical problems from the fields of education and industry. The major areas of study will be: distribution functions, sampling theory, point estimation, and hypothesis testing. A knowledge of differential and integral calculus is requisite.

Math 582 Theory of Probability 2 s.h.

This course deals with the basic concepts of probability theory with emphasis on practical applications. Topics include: the theory of permutations and combinations, distribution functions, Bernoulli's and Bayes' theorems, and the normal and Poisson distributions. Prerequisite: Differential and Integral Calculus.

Math 590-594 Mathematics Research I, II, III, IV 4-8 s.h.

The purpose of the first course is to acquaint students with the mathematics literature and to develop skill in the use of this literature. A proposal for independent study or research will be required in the first course. At least one more research course is required. If the student elects to do independent study under the guidance of a faculty adviser in some area of mathematics which he has not studied in his regular courses, he will receive two credits for a completed paper in this area. If the proposal made by the student in the first research course is acceptable as thesis work, the student may receive up to six additional credits for the satisfactory reporting of this completed research.

MUSIC EDUCATION

Harold S. Orendorff, Chairman

William R. Becker
 Robert E. Bernat
 David T. Borst
 Wallis D. Braman
 Robert W. Burggraf
 Catherine C. Carl
 Charles A. Davis
 Daniel DiCicco
 Gladys Dunkelberger
 Olive M. Fornear
 Henry C. Fuchs
 Walter A. Golz

Arvilla T. Harrold
 H. Eugene Hulbert
 Dominic J. Intili
 Dady Mehta
 C. David McNaughton
 Russel C. Nelson
 Gary J. Olmstead
 Laurence J. Perkins
 Elizabeth D. Stewart
 Lawrence C. Stitt
 Herbert Wildeboor

The graduate program in Music Education is designed to enable the student to both strengthen his musicianship and develop and broaden his understanding of the field of Music Education.

There are several options which allow the students to emphasize vocal or instrumental music through their choice of courses. This should be discussed with their adviser, who will be assigned upon admission.

There is also the choice of a recital or a thesis to meet the research requirement. If the student plans to do a thesis then Elements of Research should be programmed rather early. If a recital is planned there is a jury requirement to clear the student for this event.

MUSIC

Curriculum for Master of Education Degree

Students working for this degree with a major in Music Education will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. General Studies—four to six (4 - 6) semester hours of work to be selected from the following courses: (This is a partial listing)

Art	521	Contemporary Movements in Art	2 s.h.
Eng	521	Modern European Fiction	2 s.h.
Eng	531A	Major Writers (Emerson, Thoreau and Hawthorne)	2 s.h.
Eng	531B	Major Writers (Faulkner and Hemingway)	2 s.h.
Phil	581	Problems of Logic	2 s.h.
Phil	582	Problems of Ethics	2 s.h.
Phil	583	American Philosophic Thought	2 s.h.
SS	521	Contemporary American Issues	2 s.h.
SS	561	Social Policy Studies	2 s.h.

II. Subject Matter Concentration Area—ten to twelve (10 - 12) semester hours of work in subject matter content are to be selected from the following courses:

•	Mus	501	Advanced Choral Conducting	2 s.h.
	Mus	502	Advanced Instrumental Conducting	2 s.h.
	Mus	503	Music Literature of the Baroque Era	2 s.h.
	Mus	504	Music Literature of the 18th Century	2 s.h.
	Mus	505	Music Literature of the Early Romantic Era	2 s.h.
	Mus	506	Music Literature of the Late Romantic Era	2 s.h.
	Mus	507	Music Literature Since 1900	2 s.h.

Mus	511	Composition	2 s.h.
Mus	512	Advanced Orchestration	2 s.h.
Mus	513	Advanced Band Scoring	2 s.h.
Mus	514	Advanced Choral Arranging	2 s.h.
Mus	515	Canon, Double Counterpoint and Fugue	2 s.h.
Mus	516	Form and Analysis	2 s.h.
Mus	530	Music Criticism	2 s.h.
*Mus	540-		
	612	Applied Music	4 s.h.

III. Professional Studies—ten to twelve (10 - 12) semester hours of work, including the Thesis or Recital, to be selected from the following:

Ed	516	Statistical Methods in Education I	2 s.h.
*Ed	550	Thesis or Recital	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.
*Mus	531	Administrative Problems in Music Education	2 s.h.
*Mus	532	Seminar in Music Education	2 s.h.
Mus	533	Comparative Choral Methods	2 s.h.
* Mus	534	Comparative Instrumental Methods	2 s.h.
Mus	535	Psychology of Music Education	2 s.h.
Mus	536	Church Music	2 s.h.
Mus	537	Techniques of the Marching Band	2 s.h.

IV. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

V. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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Course Descriptions

Mus 501 Advanced Choral Conducting 2 s.h.

An evaluation of each individual's conducting technique will be made and developmental procedures introduced. Material for this process will include the large choral works with and without accompaniment. The student will be expected to further develop skills in reading score. (Davis)

Mus 502 Advanced Instrumental Conducting 2 s.h.

An intensive study of larger instrumental works will be developed especially treating the specific conducting techniques necessary to the successful performance of these compositions. The skill development of each individual will be stressed. (McNaughton)

Mus 503 Music Literature of the Baroque Era 2 s.h.

A stylistic analysis of the period from Monteverdi through J. S. Bach and G. F. Handel. The chronological limitations of the course will be approximately from A. D 1600 to 1750. Extensive use will be made of the scores and recordings as well as all live performance available in the area. (McNaughton)

Mus 504 Music Literature of the Eighteenth Century 2 s.h.

An intensive study of the development of standard musical forms and the modern orchestra. The beginning of the period to be considered is marked by the Mannheim School, continues through Haydn and Mozart, and concludes with early Beethoven. (Carl)

Mus 505 Music Literature of the Early Romantic Era 2 s.h.

A detailed study of representative compositions and composers from the later works of Beethoven through the Lieder, changing orchestral styles and the romantic opera. (Burggraf)

Mus 506 Music Literature of the Late Romantic Era 2 s.h.

A careful consideration of selected works of the latter part of the Nineteenth Century including the Music Drama, the symphonic poem, trends, and style as they emerged. (Burggraf)

Mus 507 Music Literature Since 1900 2 s.h.

A study of the main currents of musical thought and an analysis of trends and styles since the turn of the century with particular reference to selected compositions of Prokofieff, Stravinsky, Milhaud, Bartok, Hindemith, Schoenberg, Shostakovitch et al. (Bernat)

Mus 511 Composition 2 s.h.

Composition of music in the various song forms through the rondos and the larger sonata allegro form. The student will be guided in his compositional attempts by careful analysis of similar forms of major composers. Instruction will be highly individualized as to the forms attempted and will depend considerably on the personal interest of the student. (Staff)

Mus 512 Advanced Orchestration 2 s.h.

Consideration will be given to the problems of scoring for the full symphony orchestra as well as the string orchestra and the chamber orchestra. Students will be expected to produce a full score and orchestral parts so that the orchestration may be tested by actual playing by the University Symphony. (McNaughton)

Mus 513 Advanced Band Scoring 2 s.h.

The problems of scoring for the modern concert band will be considered in detail. Actual scoring for the full symphonic band will be one of the major projects of the course. In addition, the problems of scoring for the brass band, the woodwind choir, and the percussion ensemble will also be considered. Scores and band parts for all projects will be produced by the students for an actual test playing by the University Symphonic Band. (McNaughton, Davis)

Mus 514 Advanced Choral Arranging 2 s.h.

Four-part writing for chorus will be reviewed. Five, six, seven, and eight-part writing will comprise the large part of the course. Special consideration will be given to the problem of writing for men's voices and for women's voices. All projects of the class will be duplicated in full choral score for actual test performance by one of the major vocal groups of the University. (Davis)

Mus 515 Canon, Double Counterpoint and Fugue 2 s.h.

The application of contrapuntal techniques through analysis and creative writing. Included will be the study and writing of two- and three-voice canons; two- and three-part inventions; and two-, three-, and four-voice fugues. (Staff)

Mus 516 Form and Analysis 2 s.h.

A study of representative compositions of various periods, with emphasis on formal harmonic and stylistic analysis. The student will develop the basic analytical techniques necessary for the analysis of music of any period. (Staff)

Mus 521 Music Literature and Materials (see Elementary Education Program)	2 s.h.
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The purpose of this course is to further enhance the musical background of the elementary teacher through acquaintance with suitable literature and materials. (Staff)

Mus 530 Music Criticism	2 s.h.
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Consideration of the problems involved in evaluating musical performance of many levels. A study of various approaches to critical evaluation of musical performance. Several detailed procedures of approaching the adjudication of musical groups of various levels will be developed. (Staff)

Mus 531 Administrative Problems in Music Education	2 s.h.
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A review of the conventional administrative organization of music education in the public schools. The role of the music director, the music specialist, the consultant, and the music resource teacher will be carefully defined. Consideration will be given to the problems of scheduling in the public school. Current issues concerned with music education and public education in general will be considered, including curriculum development. (Orendorff)

Mus 532 Seminar in Music Education	2 s.h.
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There will be a considerable amount of freedom in the development of this course. The content each time it is offered will be governed by the specific needs of the students programming the course. These needs will be of two general classes: (1) Strengthening areas of weakness, (2) exploring further, areas of interest. (Orendorff)

Mus 533 Comparative Choral Methods	2 s.h.
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Materials and procedures of the preparation of vocal groups for public performance. Several accepted, yet contrasting, approaches will be considered, ranging from the Christiansen technique to that of John Finley Williamson. Special attention will be given to program building. (Nelson)

Mus 534 Comparative Instrumental Methods	2 s.h.
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Consideration will be given to those materials and procedures which have been proven by actual use in the United States. These various approaches will be compared and given a critical analysis by the class. Rehearsal techniques, efficient use of time and basic motivation will be stressed. The development of interesting programs will be considered. (Orendorff, Becker)

Mus 535 Psychology of Music Education	2 s.h.
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An analysis of the latest evidence produced by the field of psychology in music education as applied in actual classroom situations. A review of the latest developments in psychological research relating to specific education problems will be included. (Staff)

Mus 536 Church Music	2 s.h.
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The liturgies of all conventional church denominations will be analyzed from the standpoint of the duties of the church choir conductor. Materials and procedures applicable to volunteer groups will be reviewed and analyzed. The problem of rehearsal attendance and basic motivation will be considered. The course will also include recruitment, budgetary problems, and basic relationships with the administration of the church or synagogue involved. (Staff)

Mus 537 Techniques of the Marching Band	2 s.h.
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The theory and practical application of the fundamentals of precision drill will be studied in detail. Also, this course deals with building "half-time shows," materials and instrumentation of the marching band. (DiCicco)

Mus 540-612 Applied Music**1 s.h. each**

The following courses will be taught in the form of private lessons geared to the individual student and aiming at maximum progress of each student, depending on the background of the student and the time available:

- Mus 540, 541, 542, 543 Private Piano (Staff)**
- Mus 544, 545, 546, 547 Private Organ (Carl)**
- Mus 548, 549, 550, 551 Private Voice (Staff)**
- Mus 552, 553, 554, 555 Private Violin (Perkins)**
- Mus 556, 557, 558, 559 Private Viola (Perkins)**
- Mus 560, 561, 562, 563 Private Cello (Braman)**
- Mus 564, 565, 566, 567 Private Clarinet (Staff)**
- Mus 568, 569, 570, 571 Private Flute (Stitt)**
- Mus 572, 573, 574, 575 Private Oboe (DiCicco)**
- Mus 576, 577, 578, 579 Private Bassoon (Borst)**
- Mus 580, 581, 582, 583 Private Trumpet (Becker)**
- Mus 584, 585, 586, 587 Private French Horn (Staff)**
- Mus 588, 589, 590, 591 Private Trombone (Staff)**
- Mus 593, 594, 595, 596 Private Percussion (Olmstead)**
- Mus 597, 598, 599, 600 Private Tuba (Staff)**
- Mus 601, 602, 603, 604 Private Baritone Horn (Staff)**
- Mus 605, 606, 607, 608 Private String Bass (Braman)**
- Mus 609, 610, 611, 612 Private Saxophone (Staff)**

PSYCHOLOGY

Stanley Lore, Chairman

Morton Morris, Chairman, Dept. of Special Education

See Education and Counselor Education

Psy 530 Psychology of Growth and Development**2 s.h.**

This course is designed to provide insight into how people grow and develop from infancy to old age. Maturation, learning, and their interrelationships are studied. Physical growth patterns are noted along with emotional, intellectual, and social development with implications for the school, community and home. (Snyder, Lore)

Psy 531 Psychology of the Exceptional Child**2 s.h.**

This course is designed to aid the student in meeting the needs of those children who deviate from the typical in areas of physical, mental, emotional, and educational developments. Consideration will be given to methods of instruction and curricular material. (Morris)

Psy 532 Studies in Pupil Adjustment

2 s.h.

This course considers the problems of human adjustment in relation to causative factors. (Pre-school through adolescence and youth.) It stresses the dynamics of personal and interpersonal relationships and explores the role and function of the parent, the teacher and available specialists in remedial treatment. Case material will be used with direct application to specific problems. (Snyder)

Psy 533 The Psychology of Personality

2 s.h.

A consideration of the varied approaches to the problem of understanding personality. The objective will be to give the student an overview of each of the methods of analyzing personality that has, over an extended period of time, withstood careful scrutiny and investigation. The course will undertake some measure of integration by indicating similarities among the various approaches. (Staff)

Psy 534 Abnormal Psychology

2 s.h.

Theories of pathological behavior with reference to clinical and experimental data. (Staff)

Psy 535 Differential Psychology

2 s.h.

In this course stress is placed upon a study of individual differences and the impact of these differences upon learning rates, interests, and personality. (Staff)

Psy 536 Psychology of Learning

2 s.h.

In this course learning theories will be explored in terms of breadth, their historical development, and for their impact upon educational philosophy and educational practices. (Staff)

Psy 538 Psychology of the Gifted Child

2 s.h.

Characteristics of the bright, fast-learning child will be explored along with implications for education. Emphasis will also be given to measurement techniques. Motivational factors, and personality dynamics. (Morris)

Psy 539 Psychology of the Mentally Retarded Child

2 s.h.

Characteristics of the slow-learner and of the non-educable child will be explored along with implications for education. Emphasis will also be given to measurement techniques, motivational factors and personality dynamics. (Morris)

Psy 540 Advanced Mental Hygiene

2 s.h.

This course is designed to offer a comprehensive treatment of the basic principles of mental hygiene. Its major concern is the normal, reasonably well-adjusted individual. Special emphasis will be given to the influence of activities carried on in the home, the school, and the community in an effort to stress the importance of prevention in the maintenance of mental health. (Wilson, Staff)

Psy 541 Individual Psychometric Techniques: The Binet Scales

2 s.h.

Historical development, administration, scoring, and interpretation of the Stanford-Binet intelligence tests. Enrollment in this course will necessarily be limited, with priority assigned to advanced graduate students pursuing a regular program of study at this university. Programming will be by special arrangement. Prerequisite: Guid. 534 or its equivalent, and consent of the instructor and chairman of the program. (Staff)

Psy 542 Individual Psychometric Techniques: The Wechsler Scales 2 s.h.

Historical development, administration, scoring, and interpretation of the Wechsler intelligence tests. Enrollment in this course will necessarily be limited, with priority assigned to advanced graduate students pursuing a regular program of study at this university. Programming will be by special arrangement. Prerequisites: Guid. 534 or its equivalent, and consent of the instructor and chairman of the department. (Staff)

Psy 543 Introduction to Projective Techniques 2 s.h.

This course is primarily concerned with the rationale, structure and theoretical background of projective devices. Necessary prerequisites would include background in personality theory and tests and measurements. (Staff)

Psy 544 Advanced Learning Theories 2 s.h.

Emphasis in this course is given to major learning theories. Atomistic and field theories are examined individually but special stress is given to eclectic contributions. (Staff)

Psy 561 Advanced Psychological Practicum 1-4 s.h.

Structured to provide the graduate student, qualified in either psychology or guidance, with a working experience in a clinical situation. The student will participate, under supervision, in educational, vocational, and personal advisement. Registration only with permission of the Director of the Psychological Clinic. (Staff)

Psy 565 Measurement of Interests and Personality 2 s.h.

This course is concerned with an intensive study of selected interest inventories which illustrate different techniques of measurement and with the various instruments used to measure nonintellectual aspects of behavior, as for example, emotional adjustment, social relations, motivation, attitudes, and the like. Projective techniques will not be included in the study of "personality tests." Prerequisite: Guid. 534. (Staff)

BIOLOGY DEPARTMENT

Donald E. Hoffmaster, Chairman

Willis H. Bell
 Walter W. Gallati
 Louis L. Gold
 Francis W. Liegey
 Robert Merritt
 Charles D. Reese

Arthur G. Shields
 Dwight E. Sollberger
 Martin L. Stapleton
 Richard M. Strawcutter
 William J. Vail
 Richard F. Waechter

Cyril J. Zenisek

Any student planning to specialize in Biology must have had 24 semester hours in Biology, one year of Physics, and one year of Chemistry as an undergraduate. Recommended undergraduate courses in Biology include General Biology I and II, Botany I and II, Zoology I and II, Ecology, General Physiology, and Genetics. Organic Chemistry is also desirable.

At the time he is admitted to the graduate school, each student is assigned a faculty adviser by the chairman of the department. It is the student's responsibility to check with the faculty adviser to select a program which is best fitted to the development of the student in his chosen field. The adviser will also assist the student in choosing, preparing, and presenting his thesis or research project.

Ed. 515, Elements of Research, should be scheduled early in the program in order to give the student ample time to fulfill the research requirement.

Students who select a four-credit sequence are required to complete the sequence in order to receive any credit.

In certain courses in the Biology Department, additional laboratory time may be required beyond the regularly scheduled periods.

Curriculum for Master of Education Degree

Students working for this degree with a major in Biology will complete 30 semester hours of work in accordance with the following divisions.

I. Subject Matter Concentration Area—fourteen to twenty-two (14 - 22) semester hours of work in subject matter content is to be selected either from the Natural History area or the Anatomy and Physiology area. Students are also required to select one course from the following:

Biol	533	Biological Literature	2 s.h.
Biol	576	Radiation Biology	2 s.h.
Chem	546-		
	547	Biochemistry I, II	4 s.h.

Natural History Area

Biol	551-		
	552	Taxonomy of Plants I, II	4 s.h.
Biol	553	Principles of Animal Taxonomy	2 s.h.
Biol	555	Principles of Plant and Animal Distribution	2 s.h.
Biol	565	Field Natural History	2 s.h.
Biol	569	Ecology	2 s.h.
Geol	570	Paleontology	4 s.h.
Biol	564	Problems in Biology	2 s.h.

Anatomy and Physiology Area

Biol	541-		
	542	Comparative Anatomy I, II	4 s.h.
Biol	543-		
	544	Embryology I, II	4 s.h.
Biol	545	Microtechnique	2 s.h.
Biol	561	Plant Structure	2 s.h.
Biol	562	Animal Physiology	2 s.h.
Biol	563	Physiology of Plants	2 s.h.
Biol	566-		
	567	Cellular Physiology I, II	4 s.h.

The following courses may be elected by students in either area of concentration:

Biol	568	Demonstrations in Biology	2 s.h.
Biol	572-	573 Bacteriology I, II	4 s.h.
Biol	574	Genetics	2 s.h.

II. Professional Studies—four to ten (4 - 10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed	516	Statistical Methods in Education I	2 s.h.
LRes	500	Seminar in Learning Resources	2 s.h.
Ed	550	Thesis	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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Course Descriptions

Biol 533 Biological Literature 2 s.h.

The purpose of this course is to give the graduate student an opportunity to become more familiar with biological literature and to develop skill in the use of the literature. Periodicals, encyclopedias, handbooks, abstracting journals and other books dealing with the various divisions of biology will be studied. Students are required to conduct a literature search on a selected topic. (Sollberger)

Biol 541, 542 Comparative Anatomy I, II 4 s.h.

This course is a comparative study of the structure of representatives of the classes of vertebrates. The shark, *necturus*, and cat will be dissected. Three hours per week throughout the year. Prerequisites: Zoology I, II. (Sollberger, Strawcutter)

Biol 543, 544 Embryology I, II 4 s.h.

A comprehensive course tracing the maturation of gametes, fertilization, cleavage, differentiation, organogenesis, and development in the vertebrates. Major emphasis will be placed on such phenomena in the chick, with correlative work on the frog and pig. A two-semester course with both lecture and laboratory work that meets three hours a week. Prerequisites: Zoology I, II, Comparative Anatomy is desirable. (Strawcutter, Gallati)

Biol 545 Microtechnique 2 s.h.

A course designed to acquaint the student with the procedures involved in the production of microscope slides. Techniques of preparing whole mounts, microtome sections and serial sections will be covered. Both plant and animal materials will be used. A one-semester course that will meet three hours per week, at least two of which will be spent in independent slide preparation. Prerequisites: Gen. Biology I, II. (Bell, Strawcutter)

Biol 551, 552 Taxonomy of Plants I, II 4 s.h.

This course includes the collection, identification, and classification of vascular plant species with special emphasis on family characteristics and phylogeny. Three hours per week throughout the year. Prerequisite: Botany I, II. (Shields)

Biol 553 Principle of Animal Taxonomy 2 s.h.

This course is a study of the classification system and its application to the identification of animals. The basic principles of taxonomy, rules of nomenclature, a synoptic history of classification and the "old" and "new" taxonomy will be included. A field study or original library project on some taxonomy problem is required. (Gallati)

Biol 555 Principles of Plant and Animal Distribution 2 s.h.

Consideration will be given to the scientific principles underlying the geographic distribution of plants and animals. The factors causing speciation, the centers of origin, and the effects of climate, barriers, and geologic age on migration and range will be studied. Prerequisites: General Biology I, II. (Bell)

Biol 561 Plant Structure 2 s.h.

The anatomy of typical representatives of the vascular plants will be studied. Consideration will be given to the variations in structure and development of root, stem, leaf, and flower among various plant families. Prerequisites: Botany I, II. (Bell)

Biol 562 Animal Physiology 2 s.h.

Through lectures and laboratory work, students will consider the events of digestion, molecular transport of nutrients and wastes, gaseous exchange, excretion, muscular movement, and control by endocrines and nervous tissue. Prerequisites: Zoology I, II. (Liegey)

Biol 563 Physiology of Plants 2 s.h.

Cell physiology including respiration, photosynthesis, fermentation, enzyme catalysis, auxins, and membrane phenomena will be stressed. Tropisms, mineral nutrition, water metabolism, and the translocation of solutes are additional areas of discussion and experimentation. (Shields)

Biol 564 Problems in Biology 2 s.h.

The course offers the opportunity for a student to conduct a literature search combined with controlled experimentation on a limited biological problem. Each student will choose a problem of interest from a field previously studied and work in consultation with his instructor. Prerequisites: six hours of graduate work in Biology and consent of the department. (Staff)

Biol 565 Field Natural History 2 s.h.

This course is designed for those high school biology teachers who wish to increase their knowledge of the biology of their surroundings, particularly those who have had limited opportunity for this type of work in their undergraduate programs. Field trips will be conducted to areas of interest in Western Pennsylvania. Each student will be required to work on a field problem which will be selected through consultation with the instructor. Prerequisites: Zoology I, II, and Botany I, II. (Staff)

Biol 566-567 Cellular Physiology I and II**4 s.h.**

A study of the fundamental activities of plants, animals and microorganisms. The activities considered include the following: nutrition, including in its broadest sense the uptake and preparation of food and oxygen, the release of energy and elimination of waste products; response to the environment; and growth and reproduction. (Liegey)

Biol 568 Demonstrations in Biology**2 s.h.**

Classroom and lecture demonstrations will be prepared and evaluated by students and instructors. The use of simple apparatus and easily obtained biological materials will be emphasized. (Hoffmaster)

Biol 569 Ecology**2 s.h.**

This course involves a consideration of the ecologic principles underlying the interrelationships of living things. Physical, biotic, and historical factors of the environment will be studied. Prerequisites: Botany I, II; Zoology I, II. (Zenisek)

Biol 572-573 General Bacteriology I, II**4 s.h.**

A course intended to acquaint the student with the structures and activities of bacteria. The morphology, classification and biochemical behavior of bacteria are studied. Emphasis is also placed on microorganisms in relation to health and disease. (Liegey)

Biol 574 Genetics**2 s.h.**

This course reviews the fundamental theories of heredity which have developed since the work of Mendel and more specifically since 1900. A survey of human inheritance with eugenics is included in the course. (Staff)

Biol 576 Radiation Biology**2 s.h.**

Basic aspects of nuclear physics, the phenomena of radioactive isotopes and the biological effects of such isotopes. Concurrent laboratory work utilizing instruments for detection and measurement of radioactive nuclides used in biological experimentation. Meets three hours per week in a combined lecture-laboratory period. Organic and biological chemistry strongly recommended. (Gallati)

ELEMENTARY SCIENCE

Donald E. Hoffmaster, Chairman

Joseph Costa
Louis Gold
Donald Groff
William Heard
Robert Merritt
Robert Moore
Paul Prince

Arthur Shields
Martin Stapleton
Paul Waddell
Richard Waechter
Robert Woodard
Cyril Zenisek
Patsy Zitelli

This program leading to a Master of Education Degree in elementary science is designed to give elementary teachers depth and competency in the content areas of the physical and biological sciences. The sequence of the courses listed below will prepare the student to work as an elementary science resource person within his school or school district. These courses are not open to majors in Biology, Chemistry, and Physics.

At the time he is admitted to the graduate school, each student is assigned a faculty adviser by the chairman of the department. It is the student's responsibility to check with the faculty adviser to select a program which is best fitted to the development of the student in his chosen field. The adviser will also assist the student in choosing, preparing, and presenting his thesis or research project.

Ed. 515, Elements of Research, should be scheduled early in the program in order to give the student ample time to fulfill the research requirement.

Students who select a four-credit sequence are required to complete the sequence in order to receive any credit.

In some courses in Elementary Science, additional laboratory time may be required beyond the regularly scheduled periods.

ELEMENTARY SCIENCE

Curriculum for Master of Education Degree

This program does not lead to certification in science at the secondary level. It is designed to provide the elementary teacher with an opportunity to increase his ability to teach science at the elementary level. Students working for this degree with a major in Elementary Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration Area—fourteen to twenty-two (14 - 22) semester hours of work in subject matter content are to be selected from the following courses, except that a more advanced course may be required by the adviser if the background of the student warrants.

ElSc	530	Quantitative Tools for Elementary Science	2	s.h.
ElSc	540	Chemistry I	2	s.h.
ElSc	541	Chemistry II	2	s.h.
ElSc	550	Physics I	2	s.h.
ElSc	551	Physics II	2	s.h.
ElSc	560	Botany I	2	s.h.
ElSc	561	Botany II	2	s.h.
ElSc	564	Zoology I	2	s.h.
ElSc	565	Zoology II	2	s.h.
ElSc	568	Field Biology I	2	s.h.
ElSc	569	Field Biology II	2	s.h.
ElSc	570	Geology	2	s.h.
ElSc	574	Meteorology	2	s.h.
ElSc	580	Astronomy	2	s.h.
Math	521	Basic Concepts in Mathematics	2	s.h.

II. Professional Studies—four to ten (4 - 10) semester hours of work including research paper or the thesis to be selected from the following:

Ed	516	Statistical Methods in Education I	2	s.h.
LRes	500	Seminar in Learning Resources	2	s.h.
Ed	550	Thesis	2 to 4	s.h.
El	531	Curriculum Problems in Elementary Education	2	s.h.
El	533	Reading Disabilities of Elementary School Children	2	s.h.
El	542	Arithmetic in Elementary School	2	s.h.
El	543	Resource Materials in Elementary Science	2	s.h.
El	544	Recent Trends in Elementary Language Arts	2	s.h.
Psy	531	Psychology of the Exceptional Child	2	s.h.
Psy	532	Studies in Pupil Adjustment	2	s.h.
ElSc	592	Elementary Science Curriculum	2	s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations in Education	2	s.h.
Ed	512	Philosophical Foundations in Education	2	s.h.
Ed	513	Social Foundations of Education	2	s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2	s.h.
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Course Descriptions**ElSc 530 Quantitative Tools for Elementary Science****2 s.h.**

The course is designed to help the elementary teacher become acquainted with and gain in proficiency in the quantitative aspects of science. The emphasis will be on practical problem solving related to typical laboratory data. Considerable time will be spent on instruments, instrument calibration, graphing, and graph interpretation (interpolation and extrapolation). The area under the curve idea and the meaning of slope on a graph will be explored extensively. Concentrated instruction in the use of the slide rule, use of logarithms and algebra, trigonometric functions, scientific notation and significant figures will be used as tools to achieve the above objectives. (Mathematics Staff)

ElSc 540, 541 Chemistry I, II**4 s.h.**

These courses are designed to help the elementary teacher become acquainted with chemistry as it is today. They approach the study of chemistry through investigation. Unifying principles of chemistry will be developed placing emphasis on experimentation. No previous college chemistry is necessary as a prerequisite. They are laboratory-centered courses. It is planned that experiences be provided to furnish data for a background in which principles and topics are discussed. The methodology employed provides experiences that elementary teachers will find helpful in teaching science in the grades. Three (3) hours of lecture and/or laboratory per week for each course. It is necessary to complete Chemistry I before scheduling Chemistry II. A prerequisite for these courses is ElSc 530 or an equivalent undergraduate course. (Heard, Costa)

ElSc 550, 551 Physics I, II**4 s.h.**

These courses are designed to increase the elementary teacher's knowledge and understanding of the concepts, methods, and experimental techniques of physics as a background for the teaching of that part of science in the elementary school. It is not the purpose of these courses to list what physics should be taught in the elementary grades nor how to teach it. The period will be devoted to lecture, class discussion and/or laboratory work. A prerequisite for these courses is ElSc 530 or an equivalent undergraduate course. Physics I should be completed before Physics II is undertaken. (Waddell, Zitelli)

ElSc 560, 561 Botany in Elementary Science Education I, II**4 s.h.**

These Laboratory courses include a study of the flowering and non-flowering plants. Special emphasis is placed upon physiology and morphology. Taxonomy and genetics will be discussed in their relationship to the elementary school curricula. (Shields)

ElSc 564 Zoology in Elementary Science Education I**2 s.h.**

A lecture and laboratory course that provides for the study of elementary vertebrate embryology and the dissection of representative vertebrates of the Classes Osteichthyes and Amphibia. Three (3) hours of lecture and/or laboratory. (Merritt)

ElSc 565 Zoology in Elementary Science Education II**2 s.h.**

A lecture and laboratory course that is a continuation of Zoology in Elementary Science Education I. The major systems of the vertebrates will be discussed as well as the dissection of representative vertebrates of the Classes Reptilia and Aves. Zoology in Elementary Science Education I is prerequisite to Zoology in Elementary Education II. Three (3) hours of lecture and/or laboratory. (Merritt)

ElSe 568, 569 Field Biology I, II 4 s.h.

A laboratory course that will acquaint the elementary teacher with the biological environment outside of the classroom and will also provide a number of activities that are applicable to the elementary school. Four (4) hours of laboratory. (Summers only) (Merritt, Zenisek)

ElSe 570 Geology 2 s.h.

A study of rocks and geologic formations as they are related to elementary science. Past history of the earth, as well as present day geologic phenomena are discussed. Field trips and laboratory work are part of the course. Two (2) hours of lecture and/or laboratory. (Groff)

ElSe 574 Meteorology 2 s.h.

The fundamentals of weather and weather instruments are discussed. Familiarization with weather instruments, maps, and records, as well as activities applicable to elementary science are underscored throughout the course. Two (2) hours of lecture and/or laboratory. (Prince)

ElSe 580 Astronomy 2 s.h.

The study of the constellations, members of the solar system, and other heavenly bodies will be part of the area of concentration. However, telescopes and space travel are included as they are related to science in the elementary school. Two (2) hours of lecture and/or laboratory. (Woodard)

ElSe 592 Elementary Science Curriculum 2 s.h.

A course designed to come late in the graduate program when the graduate student will have an appreciation for discussions centered around the various approaches to the teaching of science in the elementary school. The study of texts that are being used in the elementary schools as well as the problems of curriculum construction are covered. When possible, demonstration classes will be taught by the instructor and students. Two (2) hours of class. (Waechter)

CHEMISTRY DEPARTMENT

Paul R. Wunz, Jr., Chairman

Carl W. Bordas

William W. Hassler

Edward N. Brown

William I. Heard

Edward G. Coleman

Ronald L. Marks

Joseph J. Costa

Robert N. Moore

Donald W. Groff

Stanford L. Tackett

The field of chemistry is a rapidly changing field. Many ideas are superseded in the span of a few years by newer ideas based on modern theories and new data. It is necessary for the secondary school teacher of chemistry to be aware of these changes, and be given the opportunity to keep abreast of these developments. The graduate courses offered at Indiana represent one way of meeting this challenge.

Although there is no major in geology, geology courses are offered in the chemistry department leading to an M.Ed. in Science Education.

The student entering the graduate program in chemistry will be assigned a faculty adviser. In conjunction with the adviser, the student will work out his program of study both in content and sequence. This program will be approved by the faculty adviser and any deviations from the approved program must be cleared first with the adviser or the department chairman if the adviser is not available. Approval for graduation may be withheld, if the proposed program is not followed.

Although the program permits a choice between a thesis and a research project, the department strongly favors the thesis. The student will be expected to choose the thesis unless he can present good evidence to show that the research project will be more beneficial to him. Chemistry is a laboratory science and the laboratory experience of solving a chemical research problem is felt to be very helpful and rewarding to the student. Much contagious enthusiasm can be gained by contributing to the knowledge of chemistry. Since an experimental project requires considerable time, the student, with the help of his adviser and other staff members, should select his thesis problem as soon as possible and work on it while taking other course requirements.

Curriculum for Master of Education Degree in Chemistry

Students planning to complete this program must have one year each of General Chemistry, Analytical Chemistry, Organic Chemistry, Physical Chemistry, General Physics as well as Mathematics through Integral Calculus.

Students working for this degree with a major in Chemistry will complete a minimum of thirty (30) semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration Area — sixteen to twenty-two (16 - 22) semester hours of work in subject matter content as follows:

A. Required Courses:

Chem.	546-547	Biochemistry I, II	4 s.h.
Chem.	548-549	Physical Chemistry I, II	4 s.h.
Chem.	565-566	Advanced Inorganic Chemistry I, II	4 s.h.
Chem.	573-574	Advanced Organic Chemistry I, II	4 s.h.

B. Elective Courses—six (6) semester hours of work may be selected from the following courses:

Phys.	531	Atomic Structure	2 s.h.
Sci.	572	Experimental Techniques in Chemistry and Physics	2 s.h.
Sci.	573-		
	574	Computations in Physics and Chemistry	4 s.h.
Phys.	569-		
	570	Electricity and Magnetism I, II	4 s.h.
Math	526	Fundamental Concepts of Analysis	2 s.h.
Math	529	Differential Equations	2 s.h.
Geol.	515	Minerology	2 s.h.

II. Professional Studies—four to ten (4 - 10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed.	516	Statistical Methods in Education I	2 s.h.
LRes	500	Seminar in Learning Resources	2 s.h.
Ed.	550	Thesis	2 to 4 s.h.
Psy.	531	Psychology of the Exceptional Child	2 s.h.
Psy.	532	Studies in Pupil Adjustment	2 s.h.

III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed.	511	Historical Foundations of Education	2 s.h.
Ed.	512	Philosophical Foundations of Education	2 s.h.
Ed.	513	Social Foundations of Education	2 s.h.

IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed.	515	Elements of Research	2 s.h.
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Course Descriptions

Chem 546, 547 Biochemistry I, II 4 s.h.

An intensive study of the chemistry, metabolism, and functions of the major constituents of living matter. Three hours per week throughout the year. Prerequisites: Organic Chemistry I and II.

Chem 548, 549 Physical Chemistry I, II 4 s.h.

First semester: Kinetic theory of gases, mathematical review of classical equilibrium thermodynamics with applications to chemical equilibrium and solution theory and selected topics.

Second semester: Modern chemical thermodynamics with applications to kinetics. Introduction to solids and other topics as time permits. Prerequisites: Undergraduate physical chemistry I and II and calculus, or permission of instructor.

Chem 565, 566 Inorganic Chemistry I, II 4 s.h.

The first course is a study of the theoretical aspects of inorganic chemistry directly related to the properties and structure of the elements and their compounds. Inorganic II is descriptive inorganic chemistry interpreted in terms of modern theory. Prerequisites: Undergraduate Physical Chemistry.

Chem 573, 574 Advanced Organic Chemistry I, II 4 s.h.

A course in theoretical organic chemistry with emphasis on the mechanisms of the major types of organic reactions. Three hours per week throughout the year. Prerequisites: Organic Chemistry I and II.

Geol 514 Crystallography 2 s.h.

This course is designed for the geologist, chemist, and physicist. Minerals are studied utilizing common field and X-Ray notation. External and internal morphology is examined. Stereographic projection techniques are applied. Prerequisites: Fundamentals of Mathematics, Geology I and first year college physics desirable.

Geol 515 Mineralogy 2 s.h.

This course is a workshop in the study of and identification of minerals, the theory of mineral formation, and mineral relationships. Simple chemical and physical techniques of mineral identification shall be taught up to and eventually including X-Ray Analysis. Prerequisite: Mathematical Analysis and Geology I, also General Chemistry.

Geol 516 Petrology 2 s.h.

This course is a study of rock phyla and their chemical and spatial relationships in the earth. Special attention is given to the genesis, mineral composition, and classification of the rock types. The ecology of igneous, sedimentary, and metamorphic rocks is studied in detail. Lecture and Laboratory.

Geol 535 Geomorphology 2 s.h.

This course is designed for graduate students who wish to strengthen their background in geology. It provides a review of the agents modifying the surface of the earth and a map study laboratory for topographic map interpretation.

Geol 570 Paleontology 2 s.h.

This course is designed for majors in any field. It is a study of the major forms found in the geologic fossil record and a review of the paleoecology of that fossil site. Certain classical and guide fossil types are reviewed in detail.

PHYSICS

Richard E. Berry, Chairman

Gary L. Buckwalter
 John K. Matolyak
 Patrick J. McNamara
 Daniel G. Reiber

Richard Roberts
 Paul M. Waddell
 Robert L. Woodard
 Patsy A. Zitelli

The graduate program in Physics is designed primarily for Physics teachers who are continuing their education in order to satisfy the requirements for a permanent teaching certificate. Many of the courses would be of value to anyone who has been away from course work for five or more years. Recent developments, in instrumentation particularly, are being added to the program with the grant received for equipping the new science building. The courses: Advanced Laboratory I and II, Electricity and Magnetism, Quantum Mechanics, and Modern Physics are especially recommended to anyone engaged in industrial research.

The Theoretical Physics courses are required for about half of the more advanced courses and should be taken at the first opportunity. Theoretical Physics I may not be required of students who have an adequate background in applied differential equations. Indiana's Math 357 is a satisfactory substitute for our recent graduates. This should be discussed with your Physics advisor before programming.

Every Physics graduate student is assigned an advisor who can answer questions and offer suggestions on course programming. The student is required to keep his advisor informed of his plans and assumes all responsibility for arranging appointments. Advisors can be reached through the Physics Departmental secretary, who can leave memo's, arrange appointments and generally facilitate the advisory program.

The summer graduate school should be considered in your general plans. The course offerings are expanding and it is the most convenient time to fulfill the research requirement. While it may not be possible at the present time, the entire graduate program in Physics will be available through the summer program.

PHYSICS

Curriculum for Master of Education Degree

To major in Physics, the student must have had at least General Physics, Atomic and Nuclear Physics, Electronics, Mechanics I and Optics or their approved equivalents as well as Mathematics through the equivalent of Analytic Geometry and Calculus II.

Students working for this degree will complete the thirty semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration—Sixteen to twenty-two (16 - 22) semester hours from the offerings under A and B.

A. Required Courses

Phys	502	Theoretical Physics I	2 s.h.
Note: Not required of students who have credit for Math 357 or its equivalent.			
Phys	503	Theoretical Physics II	2 s.h.
Phys	521	Advanced Laboratory Practice I	2 s.h.
OR			
Phys	522	Advanced Laboratory Practice II	2 s.h.
Phys	542	Analytical Mechanics II	2 s.h.
Phys	543	Analytical Mechanics III	2 s.h.
Phys	551	Electricity and Magnetism I	2 s.h.

Phys	552	Electricity and Magnetism II	2 s.h.
Note: Phys 551 and 552 will not be required of students who have taken Phys 211 and 212 after Sept. 1966.			
Phys	561	Quantum Mechanics	2 s.h.
Phys	565	Modern Physics	2 s.h.

B. Elective Courses

Phys	511	PSSC Laboratory	2 s.h.
Phys	533	Thermodynamics	2 s.h.
Astr	534	The Solar Family	2 s.h.
Astr	536	The Sidereal Universe	2 s.h.
Any Graduate courses offered by the Mathematics or Chemistry Departments.			

II. Research Techniques

The following course is required. It should be scheduled very early in the student's program.

Ed	515	Elements of Research	2 s.h.
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III. Foundations of Education

One course must be selected from these offerings:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

IV. Thesis or Research Project

A thesis or research project is required of each student. The thesis may earn from two to four hours credit.

Ed	550	Thesis	2 s.h.
A research project fulfills this requirement, but does not earn any semester hour credit.			

V. Free Electives

The student may complete the thirty semester hour requirement by choosing from among any of the offerings of the graduate school, with, of course, the advice and approval of his graduate adviser. The student must satisfy any stated prerequisites for the elective courses which he chooses.

Course Descriptions

NOTE: This constitutes an almost complete revision of the numbers and descriptions of the courses offered by the Physics Department.

Phys 502 Theoretical Physics I	2 s.h.
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This is a course in the application of mathematical methods to physical theory. Included will be a brief review of differential and integral calculus, series expansions, partial differentials and first-order linear differential equations.

Phys 503 Theoretical Physics II	2 s.h.
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Applications in theoretical physics of vector calculus, partial differential equations, Fourier series and Green's and Stokes' theorems. Prerequisite: Phys 502 or its equivalent.

Phys 511 PSSC Laboratory**2 s.h.**

This course is designed to give the student training in the use of PSSC laboratory materials.

Phys 521 Advanced Laboratory Practice I**2 s.h.**

Measurements of radioactivity using G-M, gas-flow, scintillation and solid state detectors. Determination of half-lives, beta-ray energies by absorption studies and gamma-ray energies by single and multi-channel pulse-height analysis.

Phys 522 Advanced Laboratory Practice II**2 s.h.**

The selection of experiments will depend upon the student's previous training and interest. Emphasis will be placed upon interpretation of data. Interferometry, spectrometry, microwave optics, NMR and mechanical vibrating systems are some of the areas in which work may be done.

Phys 531 Atomic Structure**2 s.h.**

This course includes a brief review of fundamentals of electricity and magnetism. Following this, the major topics are charged particles, electron configurations, atomic spectra, atomic structure, waves and particles.

Phys 533 Heat and Thermodynamics**2 s.h.**

Topics treated in this course include temperature, laws of thermodynamics, the Carnot cycle, entropy, properties of ideal gases and pure substances, low temperature physics and application of thermodynamic principles.

Phys 541 Analytical Mechanics I**2 s.h.**

Kinematics, particle dynamics, gravitation, free and forced harmonic motion. The treatment of these topics utilizes the vector calculus and the differential and integral calculus.

Phys 542 Analytical Mechanics II**2 s.h.**

Dynamics of rigid bodies, waves and vibrations, applications of Fourier Series and LaGrange's Equations.

Phys 543 Analytical Mechanics III**2 s.h.**

Primarily a laboratory course in which the experimental results will be compared with theoretical predictions. Appropriate theory will be developed when necessary. Prerequisite: Phys 542.

Phys 551 Electricity and Magnetism I**2 s.h.**

Coulomb's Law, electrostatic potential, Gauss' Law, dielectrics will be presented using vector calculus in a modern field formalism. Prerequisite: Phys 503.

Phys 552 Electricity and Magnetism II**2 s.h.**

Biot and Savart's Law, induced emf, vector potential, displacement current, special relativity and electromagnetic radiation will be presented using techniques introduced in Phys 551. Prerequisite: Phys 551.

Phys 561 Quantum Mechanics**2 s.h.**

An introduction to the basic theory of wave mechanics. Prerequisite: Phys 503.

Phys 565 Modern Physics**2 s.h.**

Radioactivity, nuclear structure, nuclear reactions and elementary particles. Prerequisite: Phys 503 and Phys 531 or its equivalent.

Astr 534 The Solar Family

2 s.h.

This course is planned as a study of the characteristics and behavior of the planets and their satellites, asteroids, meteors, comets and other phenomena of the solar system. One of the major topics will be to investigate and criticize several of the theories of its origin. It will require some treatment of celestial mechanics but will not require a background of calculus.

Astr 536 The Sidereal Universe

2 s.h.

A study of the characteristics and classification of the stars, their assemblage in groups and galaxies and their evolution. Techniques of gathering data are examined to gain an understanding of the role of the telescope, spectroscope and photometer in astronomical research. Laboratory exercises and night observations are a part of the course. Credit will be given only to those for whom the course represents an area of study for which credit has not previously been recorded.

SCIENCE

Dwight E. Sollberger, Coordinator

Due to the rapidly expanding role of Science in our technological society, secondary schools are finding it necessary to increase their offerings in the various fields of science. This in turn requires teachers with strong backgrounds of knowledge, as well as a greater number of teachers. The various subject-matter divisions of the science area recognize the important role of Science in modern society, and have planned the graduate programs in their respective areas in such a way to provide maximum opportunities for all science teachers to improve themselves scholastically and in teaching techniques.

At the time he is admitted to the graduate school, each student is assigned a faculty adviser by the chairman of the department. With the approval of the adviser, a candidate will select a program which will make a maximum contribution to the development of the candidate in his chosen field. The adviser will also assist the student in choosing, preparing, and presenting his thesis or research project.

In certain courses in the science department, additional laboratory time may be required beyond the regularly scheduled periods. Students who select a four-credit sequence are required to complete the sequence.

SCIENCE**Curriculum for Master of Education Degree**

In order for a student to major in Science, he must have completed one year of undergraduate work in Biology, Chemistry, and Physics.

Students working for this degree with a major in Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. SUBJECT MATTER CONCENTRATION AREA — fourteen to twenty-two (14 - 22) semester hours of work in subject matter content is to be selected from the various courses in the major areas of Biology, Chemistry and Physics at the discretion of the candidate's adviser.
- II. Professional Studies—four to ten (4 - 10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed 516	Statistical Methods in Education I	2 s.h.
LRes 500	Seminar in Learning Resources	2 s.h.
Ed 550	Thesis	2 to 4 s.h.
Psy 531	Psychology of the Exceptional Child	2 s.h.
Psy 532	Studies in Pupil Adjustment	2 s.h.
- III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:

Ed 511	Historical Foundations of Education	2 s.h.
Ed 512	Philosophical Foundations of Education	2 s.h.
Ed 513	Social Foundations of Education	2 s.h.
- IV. Research Techniques—the following course is required. It should be scheduled early in the student's program:

Ed 515	Elements of Research	2 s.h.
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HISTORY

Clyde C. Gelbach, Chairman

Steven Cord
 Irwin Marcus
 Kathleen McCoy
 Jane S. Mervine
 Robert L. Morris
 James Oliver

J. Merle Rife
 John R. Sahli
 Ralph Smiley
 Alice K. Schuster
 Albert J. Wahl
 Florence Wallace

The Master of Arts Degree in History is designed to give students both breadth and depth in that academic discipline. As a terminal degree it prepares teachers for the secondary schools and community colleges. The M.A. in History may also be used as preparation for advanced work leading to the Doctor of Philosophy degree in History.

Each student admitted to the Graduate School will be assigned to an adviser in the History Department. All courses must be approved by this adviser.

It is imperative that graduate students schedule SS 510, Research Methodologies in the Social Sciences, early in their graduate program. This course must be completed before seminar work may be scheduled.

Students working toward the Master of Arts degree in History will complete a minimum of thirty (30) semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration (14 - 22 s.h.)

Hist	501	Historiography (Required)	2 s.h.
Hist	511	Readings In History	2 s.h.
Hist	512	Readings In History	2 s.h.
Hist	531	Economic and Social History of Pennsylvania	2 s.h.
Hist	532	U. S. - British Commonwealth Relations	2 s.h.
Hist	533	Social and Intellectual History of the U. S.	2 s.h.
Hist	534	Recent U. S. History	2 s.h.
Hist	541	Modern European Problems	2 s.h.
Hist	542	Contemporary Latin American Problems	2 s.h.
Hist	543	Modern Asian - African Problems	2 s.h.
Hist	545	History of Russia	2 s.h.
Hist	546	History of Europe, 1815-1914	2 s.h.
Hist	547	History of England II	2 s.h.

II. Related Fields (0 - 8 s.h.)

Up to 8 s.h. in related fields may be elected by the student with the prior approval of his advisor or departmental chairman.

III. Research (8 s.h.)

The normal research requirement will involve SS 514, Research Methodologies in Social Science, and three history Seminars. Students who demonstrate special ability in a history seminar may, with the recommendation of the instructor, write a thesis carrying 2 - 4 additional semester hours credit to complete the research requirement. Students attending the University on a full-time basis may request substitution of a course for one of the three seminars.

SS	514	Research Methodologies in Social Science (Required)	2 s.h.
Hist	544	History Seminar (Prerequisite)	2 s.h.
Hist	521	History Seminar (Prerequisite)	2 s.h.
Hist	522	History Seminar (Prerequisite)	2 s.h.
Hist	523	Thesis	2 - 4 s.h.

Course Descriptions

Hist 501 Historiography 2 s.h.

An introduction to the various schools of historical writing with some consideration of the leading practitioners. Required of all history M.A. candidates. (Staff)

Hist 511 Readings In History 2 s.h.

Directed reading of significant historical materials, focused on a general topic. (Staff)

Hist 512 Readings In History 2 s.h.

Directed reading of significant historical materials, focused on a general topic. (Staff)

Hist 521 History Seminar 2 s.h.

Area research in the discipline, culminating in a formal paper. Pre-requisite: SS 514

Hist 522 History Seminar 2 s.h.

Area research in the discipline, culminating in a formal paper. Pre-requisite: SS 514.

Hist 531 Economic and Social History of Pennsylvania 2 s.h.

This course analyzes the economic and social background of Pennsylvania with emphasis on regional development. The interplay of such factors as industrialization and immigration on organizational movements will be studied through the problem approach. (Sahl)

Hist 532 U. S. - British Commonwealth Relations 2 s.h.

Emphasis is placed on those aspects of United States and Commonwealth backgrounds and policies that aid mutual understanding and international accord in the modern world. (Gelbach)

Hist 533 Social and Intellectual History of the United States 2 s.h.

An analysis of the cultural forces which have helped to shape modern America. Ways of living characteristic of certain periods will be studied, together with the more significant social-reform movements and their attendant systems of thought. (Wahl)

Hist 534 Recent U. S. History 2 s.h.

A course devoted to an analysis of the fundamental changes in American culture since 1900. (Staff)

Hist 541 Modern European Problems 2 s.h.

A course area that considers Europe from the economic, social, political, diplomatic, and cultural points of view. Attention is also given to specific problems and to the role of European powers in world affairs. (Rife)

Hist 542 Contemporary Latin American Problems .2 s.h.

A study of the major cultural, economic, political, and related problems currently confronting the Latin American countries. (Schuster)

Hist 543 Modern Asian-African Problems 2 s.h.

To understand better the nature and problems of a large portion of the non-Western world, the emphasis will be placed upon an analysis of contemporary, social, economic, and political developments in selected areas of Asia and Africa. (Wallace)

Hist 544 History Seminar

2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Research Methodologies in Social Science. (Staff)

Hist 545 History of Russia

3 s.h.

A general survey of Russian history, culture and institutions. Special consideration is given to the study of those historical forces which were formative of the Revolution of 1917. Consideration is also given to post-Revolution Russia. May not be programmed by students with undergraduate credit for History of Russia. (Morris)

Hist 546 History of Europe: 1815-1914

3 s.h.

A comprehensive study of the factors contributed by the European people in their national organization through their political, social, and economic activities. The understanding of these casual and inter-group relationships are basic to analysis and interpretations of the European world today. May not be programmed by students with undergraduate credit for History of Nineteenth Century Europe. (Staff)

Hist 547 History of England II

3 s.h.

Britain since 1688 with a detailed study of the political and economic changes in England of the 18th, 19th, and 20th centuries will be covered. Particular stress will be given to the role of England in the imperialism of the age. May not be programmed by students with undergraduate credit for History of Modern England. (Staff)

SS 514 Research Methodologies in the Social Sciences

2 s.h.

Selection of a research topic, techniques of locating and using source materials, the evaluation of evidence, the organization of the tested data, and the exposition of the tested data according to approved forms. Methodologies of value to students of politics, economics, or sociology will receive attention, in addition to those techniques usually treated in historiography. (Wahl)

SS 599 Contemporary Europe

6 s.h.

A study project devoted to the politics, economics, sociology, history, and culture of Europe through direct observation. (Staff)

SOCIAL SCIENCE

Raymond L. Lee, Coordinator

Steven Cord
 Clyde C. Gelbach
 Virginia Gerald
 Richard F. Heiges
 David Keene
 Irwin Marcus
 Kathleen McCoy
 Francis McGovern
 Jane S. Mervine
 Robert L. Morris
 Esko E. Newhill

J. Merle Rife
 James Oliver
 Downey Raibourn
 Ralph Smiley
 John R. Sahli
 Alice Schuster
 Walter Shea
 Bert A. Smith
 Robert C. Vowels
 Albert J. Wahl
 Florence Wallace

The Master of Education Degree with a major in Social Science is designed to give secondary teachers greater depth and competency in the subject matter and research techniques of the social sciences.

Each student admitted to the Graduate School will be assigned to an adviser in the Social Science Division. All courses must be approved by that adviser.

It is recommended that graduate students schedule either Ed. 515, Elements of Research or SS 514, Research Methodologies in the Social Sciences early in their graduate program. One of these courses must be completed before any seminar work may be scheduled.

Students working for this degree with a major in Social Science will complete a minimum of thirty (30) semester hours of work in accordance with the following divisions.

I. Subject Matter Concentration Area—fourteen to twenty-two (14 - 22) semester hours of work in subject matter content are to be selected from the following courses: A minimum of 12 semester hours is to be elected in the Social Studies field. A maximum of four semester hours may be elected in allied fields (Geography, English, Foreign Language). Courses must be elected in three of the four Social Science divisions.

HISTORY

Hist	501	Historiography	2	s.h.
Hist	511	Readings In History	2	s.h.
Hist	512	Readings In History	2	s.h.
Hist	521	History Seminar (Prerequisite)	2	s.h.
Hist	522	History Seminar (Prerequisite)	2	s.h.
Hist	531	Economic and Social History of Pennsylvania	2	s.h.
Hist	532	U. S. - British Commonwealth Relations	2	s.h.
Hist	533	Social and Intellectual History of U. S.	2	s.h.
Hist	534	Recent U. S. History	2	s.h.
Hist	541	Modern European Problems	2	s.h.
Hist	542	Contemporary Latin American Problems	2	s.h.
Hist	543	Modern Asian - African Problems	2	s.h.
Hist	544	History Seminar (Prerequisite)	2	s.h.
Hist	545	History of Russia	3	s.h.
Hist	546	History of Europe; 1815-1914	3	s.h.
Hist	547	History of England II	3	s.h.
Hist	550	Thesis	2 - 4	credits

ECONOMICS

Econ	551	International Economics	2	s.h.
Econ	552	Comparative Economic Systems	2	s.h.
Econ	553	Contemporary Economic Issues	2	s.h.
Econ	554	Economics Seminar (Prerequisite)	2	s.h.
Econ	555	Industrial Relations	3	s.h.

POLITICAL SCIENCE

Pols	571	Foreign Policy Studies	2	s.h.
Pols	572	Comparative Political Studies	2	s.h.
Pols	573	Regional Political Studies	2	s.h.
Pols	574	Political Science Seminar (Prerequisite)	2	s.h.
Pols	575	American Political Parties	3	s.h.
Pols	576	Legislative Process	2	s.h.
Pols	577	Metropolitan Problems	2	s.h.
Pols	578	American Constitutional Law	2	s.h.

SOCIOLOGY - ANTHROPOLOGY

Soc	562	Deviant Behavior	2	s.h.
Soc	563	Intergroup Relations	2	s.h.
Soc	564	Sociology Seminar (Prerequisite)	2	s.h.
Anth	591	Studies in Anthropology	2	s.h.
Anth	592	Comparative Cultures	2	s.h.
Anth	593	The Science of Culture	2	s.h.
Anth	594	Anthropology Seminar (Prerequisite)	2	s.h.
Anth	595	Pre History	2	s.h.

UNCLASSIFIED

SS	599	Contemporary Europe	6 s.h.
II. Professional Studies—four to ten (4 - 10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:			
Ed	516	Statistical Methods in Education I	2 s.h.
LRes	500	Seminar in Learning Resonrcs	2 s.h.
Ed	550	Thesis	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Pupil Adjustment	2 s.h.
SS	510	New Viewpoints in Social Science Instruction	2 s.h.
III. Foundations of Education—two (2) semester hours of work to be selected from the following courses:			
Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.
IV. Research Techniques—one of the following courses is required. It should be scheduled early in the student's program:			
SS	514	Research Methodologies in the Social Sciences	2 s.h.
Ed	515	Elements of Research	2 s.h.

Course Descriptions

History

(Course descriptions for all History courses may be found in this bulletin under the History section)

Economics

Econ 551	International Economics	2 s.h.
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The nature of the world economy, international trade, international investment, current international institutions, and the foreign economic policy of the United States. Prerequisite: Principles of Economics. (Vowels)

Econ 552	Comparative Economic Systems	2 s.h.
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Basic economic issues in capitalism, socialism, communism, and fascism, and their relationships to political and social problems. Prerequisite: Principles of Economics. (Vowels)

Econ 553	Contemporary Economic Issues	2 s.h.
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Attention will be centered on problem areas of the domestic economy in this course. The primary focus in each semester will be determined by student-instructor interest. Prerequisite: Principles of Economics. (Vowels)

Econ 554	Economics Seminar	2 s.h.
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Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515. (Vowels)

Econ 555	Industrial Relations	3 s.h.
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A study of the problems involved in the relations between the workers and management in a dynamic industrial society, and the economic aspects of the solutions proposed or attempted by labor, management, and the government. May not be programmed by students with undergraduate credit for Industrial Relations. (Staff)

Political Science

PolS 571 Foreign Policy Studies	2 s.h.
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This course considers selected problems in international affairs. Emphasis is placed on those problems and conflicts which have evolved in the post-war era, particularly as they relate to the position of the United States in World affairs. Specific problems are approached both in terms of the countries involved and in terms of the existing balance in the world economic, ideological, and power structure. (Mervine)

PolS 572 Comparative Political Studies	2 s.h.
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A course that considers the theory, structure, policies, and problems of selected foreign governments. Specific political ideas and governmental institutions are also analyzed from the comparative point of view. Special emphasis is placed on comparing and contrasting ideas and institutions with those of the United States. (Morris)

PolS 573 Regional Political Studies	2 s.h.
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Examines the structure and function of state, county, and municipal governments. It emphasizes the problems faced by government at these levels and seeks solutions to these problems. Pennsylvania governmental forms are stressed but are contrasted with those of other states. (Heiges)

PolS 574 Political Science Seminar	2 s.h.
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Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515. (Smith)

PolS 575 American Political Parties	3 s.h.
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This course will trace historically the development of American Political Parties. Major emphasis will be placed on modern party developments since 1900. May not be programmed by students who have undergraduate credit for American Political Parties. (Staff)

PolS 576 The Legislative Process	2 s.h.
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A functional study of legislative bodies and the process of legislation, covering the organization of legislative assemblies, operation of the committee system, procedures, bill drafting, aids, and controls over legislation.

PolS 577 Metropolitan Problems	2 s.h.
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Analyzes the multiplicity of problems facing our metropolitan areas. Contemporary developments such as urban renewal, the shrinking tax base, federal aid to cities, subsidized mass transit, municipal authorities, and political consolidation are examined. Pennsylvania municipalities are contrasted with those of other states.

PolS 578 American Constitutional Law	2 s.h.
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Through the decisions of the United States Supreme Court the development of constitutional law is studied. Attention is given to the legal terminology, the history, and the philosophy significant in an understanding of American jurisprudence. Emphasis is given to the influence of legal interpretations on the political, social, and economic life of the nation.

Sociology - Anthropology

Soc 561 Social Policy Studies	2 s.h.
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Focusing on several key issues on the American social scene, the class will examine the genesis of each problem, the present conflict of values inherent in the problem, the alternative proposals for its solution and the social consequences. Open only to non-majors in the Social Sciences. (Newhill)

Soc 562 Deviant Behavior	2 s.h.
Crime as a social product. The social-individual analysis of criminal behavior, its treatment and prevention. Lectures, discussions, papers. Prerequisite: Principles of Sociology. (Newhill)	
Soc 563 Intergroup Relations	2 s.h.
Intergroup tensions and conflicts will be the subject of study with the major emphasis upon techniques of social action designed to reduce conflict. Prerequisite: Principles of Sociology. (Shea)	
Soc 564 Sociology Seminar	2 s.h.
Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515. (Staff)	
Anth 591 Studies in Anthropology	2 s.h.
A survey for graduate students of the evolution of man and culture, presenting the principal findings of physical and cultural anthropology. (Staff)	
Anth 592 Comparative Cultures	2 s.h.
A comparative study of selected examples of the world's cultures, from primitive hunters to modern industrial systems, as adaptations to their geographical and social habitats. (Staff)	
Anth 593 The Science of Culture	2 s.h.
An introduction to the major theories of cultural anthropology which are employed to account for the variety and structures of man's cultures. (Staff)	
Anth 594 Anthropology Seminar	2 s.h.
Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed. 515. (Staff)	
Anth 595 Pre History	2 s.h.
A survey of the evolution of man and culture in the Old and New World from the earliest fossil and cultural forms to the Archaic Civilizations. Prerequisite: Introduction to Anthropology. May not be programmed by students with undergraduate credit for Archaeology. (Staff)	
SS 599 Contemporary Europe	6 s.h.
A study project devoted to the politics, economics, sociology, history, and culture of Europe through direct observation. (Staff)	
Unclassified	
SS 510 New Viewpoint in Social Science Instruction	2 s.h.
Starting with the conclusions developed from recent research in the several social sciences, a study will be made of the curricular and instructional changes, which have been proposed to close the gap between what we now know about human behavior and what is generally taught in social science courses. (Mervine)	

SS 514 Research Methodologies in the Social Science 2 s.h.

Selection of a research topic, techniques of locating and using source materials, the evaluation of evidence, the organization of the tested data, and the exposition of the tested data according to approved forms. Methodologies of value to students of politics, economics, or sociology will receive attention, in addition to those techniques usually treated in historiography. (Wahl)

SS 521 Contemporary American Issues 2 s.h.

This course will be conducted in seminar fashion, centering its attention on one or two major contemporary American issues. Open only to non-majors in the Social Sciences. (Lee)

SS 561 Social Policy Studies 2 s.h.

Focusing on several key issues on the American social scene, the class will examine the genesis of each problem, the present conflict of values inherent in the problem, the alternative proposals for its solution and the social consequences. Open only to non-majors in the Social Sciences. (Newhill)

SS 599 Contemporary Europe 6 s.h.

A study project devoted to the politics, economics, sociology, history, and culture of Europe through direct observation. (Staff)

CONTEMPORARY EUROPE

The Social Science Division annually sponsors a study-tour of nine European countries during the Main Summer Session. This course, which carries six hours of graduate credit emphasizes the economic, social, political, and military organization of the continent based on the historical development of the region. Cost of the tour is approximately \$1,250, plus tuition payments. Interested students are invited to write to:

Contemporary Europe
Social Science Division
Indiana University of Pennsylvania
Indiana, Pennsylvania

SPECIAL EDUCATION AND CLINICAL SERVICES

Morton Morris, Chairman

Maude O. Brungard
Eugene A. Felix
Marshall G. Flamm

Marion M. Geisel
Eugene F. Scanlon
Seymour Schwartz
Dorothy M. Snyder

The graduate program offers specialization in two fields, with major curriculum concentrations available in Special Education (Mentally Retarded) or in Speech and Hearing. Each concentration area leads to the Master of Education degree. A graduate level of competency in these fields is in accord with national standards now emphasized by professional organizations such as the Council for Exceptional Children and the American Speech and Hearing Association.

Using the curriculum outlines provided below, students working for the Master's degree in Special Education (Mentally Retarded), or in Speech and Hearing, should select from fourteen to eighteen semester hours in their Subject Matter Concentration area (Group I). Student majors should also select from eight to twelve semester hours of course work in the area of Professional Studies and Electives (Group II). All degree candidates are required to select two semester hours in the area of Foundations of Education (Group III), and two semester hours in Ed 515, Elements of Research. The two semester hours in Elements of Research should be taken early in the student's program, for in this course plans for the thesis or research project may be started. However, it should not be scheduled at the very beginning of the program.

Admission to the Master's degree program assumes that certain subjects normally included in the undergraduate major have been successfully completed. In admission of majors in Special Education (Mentally Retarded), this would include basic undergraduate work in exceptionality, curriculum, educational psychology, mental hygiene, and human growth and development. A student with a deficiency may be admitted provisionally to the department with the understanding that deficiencies will be made up.

In admission of majors in Speech and Hearing, students must have completed at least eighteen (18) semester hours of certain subjects normally included in the undergraduate major. If a student lacks three (3) or more credits of prerequisites he may be provisionally admitted to the department and upon successful completion of the courses required to remove the deficiencies will be accepted to full graduate status.

SPECIAL EDUCATION AND CLINICAL SERVICES

Curriculum for the Master of Education Degree

I. Subject Matter Concentration

Two areas of Subject Matter Concentration are offered, each leading to the Master of Education Degree: (1) Special Education—Mentally Retarded; (2) Speech and Hearing

(1) SPECIAL EDUCATION—select fourteen to eighteen (14 - 18) semester hours

Psy	539	Psychology of Mentally Retarded Children and Youth	2 s.h.
SpE	540	Diagnostic and Evaluation Techniques in Special Education	2 s.h.
SpE	520	Curriculum and Procedures in Education of Children with Retarded Mental Development (Elementary)	2 s.h.

SpE	521	Curriculum and Occupational Guidance for Older Pupils with Retarded Mental Development	2 s.h.
SpE	522	Orientation to Rehabilitation	2 s.h.
SpE	530	Organization and Administration of Programs for Exceptional Children	2 s.h.
SpE	535	Guidance and Adjustment for the Retarded and Their Families	2 s.h.
SpE	545	Seminar on Community Organization and Interagency Planning in Mental Retardation	2 s.h.
SpE	555	Practicum and Internship	2 s.h.
SpE	560	Selected Problems and Research in Special Education	2 s.h.
SpE	565	Education of Children with Social and Emotional Maladjustments	2 s.h.

(2) SPEECH AND HEARING—select fourteen to eighteen (14 - 18) semester hours

A. Basic Area (select 2 s.h. of course work in this area)

SpH	550	Speech Science	2 s.h.
SpH	650	Experimental Phonetics	2 s.h.

B. Speech Concentration

SpH	510	Articulation	2 s.h.
SpH	512	Cleft Palate	2 s.h.
SpH	514	Cerebral Palsy	2 s.h.
SpH	532	Adult Aphasia	2 s.h.
SpH	530	Childhood Aphasia	2 s.h.
SpH	504	Diagnostic Methods	2 s.h.
SpH	516	Stuttering	2 s.h.
SpH	518	Voice	2 s.h.

C. Hearing (select 2 - 4 s.h. in this area)

SpH	540	Advanced Audiology	2 s.h.
SpH	640	Theories of Hearing	2 s.h.

D. Advanced Clinic Practicum (select 4 - 6 s.h. in this area; a minimum of 6 s.h. of graduate work are prerequisite)

SpH	561	Advanced Clinical Practicum I	2-3 s.h.
SpH	663	Advanced Clinical Practicum II	2-3 s.h.

II. Professional Studies and Electives—select eight to twelve semester hours (8 - 12 s.h.) according to major subject matter concentration.

Psy	531	Psychology of the Exceptional Child	2 s.h.
Ed	522	Principles and Practices in Speech Improvement ..	2 s.h.
Psy	538	Psychology of the Gifted Child	2 s.h.
Ed	516	Statistical Methods in Education I	2 s.h.
Ed	517	Statistical Methods in Education II	2 s.h.
Psy	530	Psychology of Growth and Development	2 s.h.
CnEd	533	Evaluation Methods in Guidance I	2 s.h.
CnEd	534	Evaluation Methods in Guidance II	2 s.h.
Psy	534	Abnormal Psychology	2 s.h.
Psy	535	Differential Psychology	2 s.h.
Psy	536	Psychology of Learning	2 s.h.
Psy	540	Advanced Mental Hygiene	2 s.h.
Psy	533	Psychology of Personality	2 s.h.
CnEd	531	Philosophy and Principles of Guidance	2 s.h.
Psy	532	Studies in Child Adjustment and Guidance	2 s.h.
Ed	534-	535 Diagnosis and Remediation in Reading	2-4 s.h.
Ed	550	Thesis (2-4 s.h.)	2-4 s.h.

III. Foundations of Education—select two semester hours (2 s.h.)

Ed 511	Historical Foundations of Education	2 s.h.
Ed 512	Philosophical Foundations of Education	2 s.h.
Ed 513	Social Foundations of Education	2 s.h.

IV. Research—two semester hours (2 s.h.) required.

Ed 515	Elements of Research	2 s.h.
Course Descriptions		

(1) SPECIAL EDUCATION (Mentally Retarded)**SpE 540 Diagnostic and Evaluation Techniques in Special Education****2 s.h.**

Diagnostic procedures and appropriate test materials are selected for use in assessment of pupils with mental and physical limitations. Observations and demonstrations are analyzed critically. Reporting and interpreting results of diagnostic procedures are integrated with remedial or developmental recommendations in individual case studies. (Prerequisite: Psy 531, Psy 539)

SpE 520 Curriculum and Procedures in Education of Children with Retarded Mental Development (Elementary)**2 s.h.**

This is a basic course dealing with the design of curriculum content, selection of instructional materials, and procedures at elementary age levels. Curriculum development and selected activities designed for retarded pupils are analyzed according to sequence and relevance of content, and levels of social maturity among pupils. Representative curricula are evaluated according to specified criteria. (Prerequisite: Psy 531, Psy 539)

SpE 521 Curriculum and Occupational Guidance for Older Pupils with Retarded Mental Development**2 s.h.**

This course considers adjustments in regular organization and curriculum which are specifically designed for retarded youth of secondary school age. Emphasis is placed upon content and procedures for developing attitudes, knowledges, and skills among pupils, in preparation for post-school adjustments to suitable work situations and responsible adulthood. (Prerequisite: Psy 531, Psy 539)

SpE 522 Orientation to Rehabilitation**2 s.h.**

Principles and practices in rehabilitation are introduced, with attention given to the contributions of teachers, counselors, nurses, social workers, psychologists, speech therapists, and other professional workers.

SpE 530 Organization and Administration of Programs for Exceptional Children**2 s.h.**

Principles, practices, and problems of administration and supervision are considered as they relate to developing and maintaining special education programs. Criteria are analyzed for use in evaluation of local programs. The functions of administrators and supervisors in school systems are compared according to rural, urban, or statewide responsibilities. Prerequisite: SpE 520, 521, 540) (Required for administrators and supervisors)

SpE 535 Guidance and Adjustment for the Retarded and Their Families**2 s.h.**

Home, school, and community influences are analyzed in family adjustment to the presence of a retarded child. Family reactions are considered in behavioral differences among children with moderate and severe degrees of retardation. Emphasis is given to guidance skills and knowledges needed by teachers and other professional workers in the field of mental retardation.

SpE 545 Seminar on Community Organization and Interagency Planning in Mental Retardation

2 s.h.

Selected professional, governmental and community organizations are studied for their contributions to comprehensive planning toward educational, personal-social, and occupational adjustments of the mentally retarded. Social, economic, and cultural aspects are analyzed.

SpE 555 Practicum and Internship

2 s.h.

Advanced students are offered guided practicum experiences in selected schools, residential institutions, clinics, or agencies. Internship or supervised student teaching is planned individually. Students analyze, evaluate, and report on their experiences.

SpE 560 Selected Problems and Research in Special Education

2 s.h.

Major theories and practices in special education are evaluated. Students have an opportunity to review critically recent developments in the field. Opportunity is afforded for independent readings and limited research reports. A student may identify a topic for subsequent development as his thesis or research project. (Prerequisite: Psy 539, SpE 540)

SpE 565 Education of Children with Social and Emotional Maladjustments

2 s.h.

This course examines reactions of children in the schools who deviate in their emotional or social behavior. Consideration is given to children who habitually exhibit overcontrolled, undercontrolled, or immature reactions. Identification, characteristics, educational provisions, and preventive measures are emphasized.

Psy 531 Psychology of the Exceptional Child

2 s.h.

This course is designed to aid the student in meeting the needs of those children who deviate from the typical in areas of physical, mental, emotional, and educational developments. Consideration will be given to methods of instruction and curricular material. (For majors and non-majors)

Psy 538 Psychology of the Gifted Child

2 s.h.

Characteristics of the bright, fast-learning child will be explored along with implications for education. Emphasis will also be given to measurement techniques. Motivational factors, and personality dynamics.

Psy 539 Psychology of Mentally Retarded Children and Youth

2 s.h.

Characteristics and needs of the mentally retarded will be explored as a foundation for structuring learning situations. Emphasis will also be given to different degrees of retardation and their causes, to motivational factors, and to personality dynamics.

(2) SPEECH AND HEARING

(Students working for the Master of Education Degree with a major in Speech and Hearing will complete a minimum of thirty (30) semester hours in the total program. In the area of subject matter concentration, fourteen to eighteen (14 - 18) semester hours will be required, with at least two (2) semester hours in the basic area, two to four (2 - 4) semester hours in the hearing area and from four to six (4 - 6) in clinical practicum. At least six (6) semester hours of graduate work are prerequisite to enrollment in practicum courses.)

A. Basic Area**SpH 550 Speech Science****2 s.h.**

A physiological, neurological, and acoustical study of the communicative process with special attention to speech monitoring, controls and perception. Emphasis will be placed on current research methodology, clinical instrumentation, and laboratory techniques.

SpH 650 Experimental Phonetics**2 s.h.**

An application of laboratory and research techniques in phonetics; development of palatograms; experience in use of the polygraph; kymograph, pneumagraph and other electronic equipment; analysis of the recordings and their significance in diagnosis and therapy.

B. Speech Concentration**SpH 510 Articulation****2 s.h.**

Advanced study of speech production with major emphasis on the articulatory mechanism and its functioning in relationship to the total speech process; recognized etiologies, diagnoses, and symptomatologies of articulatory disorders. Various methods of treatment, their rationale, appropriate use and adaptation to group or individuals. Critical review of selected topics of research.

SpH 512 Cleft Palate**2 s.h.**

A study of the embryology of the facial and cranial skull with emphasis on the development of the oral pharyngeal structures associated with speech; theories of etiology, classifications of lip and palatal clefts; methods of surgical and prosthetic repair with consideration to the appropriateness and feasibility of a specific procedure; principles and methods of speech and language training.

SpH 514 Cerebral Palsy**2 s.h.**

The neuropathology of the central nervous system as associated with types of cerebral palsy; the basis for sensory-motor and perceptual disabilities and speech and hearing handicaps; the emotional, intellectual, physical and psychological problems of the cerebral palsied individual and the means and methods of his habilitation with emphasis on the role played by the speech and hearing therapist in this habilitation.

SpH 532 Adult Aphasia**2 s.h.**

Consideration of trauma and of cerebro-vascular accident in relation to aphasia and brain function, methods of diagnosis and evaluation of the sensory and motor skills with emphasis on the communication function; the impact of speech and language loss on personality; and principles and techniques of speech and language relearning with attention to the influence of psychological and physiological factors on the relearning process.

SpH 530 Childhood Aphasia**2 s.h.**

Review of factors in differential diagnosis, characteristics, and capacities of aphasic children and means of assessing them; principles and techniques of teaching including the Association Method; approaches to helping parents understand the problems of the aphasic child.

SpH 504 Diagnostic Methods**2 s.h.**

A compilation and evaluation of diagnostic resources applicable to evaluation of speech disorders bases for selection of appropriate materials in differential diagnoses; interpretation of test results and their significance in planning future therapy.

SpH 516 Stuttering

2 s.h.

An intensive study of the nature of the stuttering disorder and its effects in the dynamics of personality development, evaluation of prevalent causal theories and their implications for both symptomological and psychological methods of treatment as adapted to individuals or group situations. Review of pertinent and recent research topics.

SpH 518 Voice

2 s.h.

An advanced study of the theory of voice production with emphasis on physiology, pathology and malfunctioning which produce voice defects; the possible relationship of disorders of voice and disorders of personality; diagnostic methods and therapeutic considerations for both organic and psychogenic disorders. Special attention will be given to therapy for the laryngectomized.

C. Hearing**SpH 540 Advanced Audiology**

2 s.h.

The identification of types of hearing loss by special audiological tests—speech audiometry, Bekesy, SAL, tone decay, PGSR; interpretation of the audiogram and its relevancy to diagnosis and remedial procedures; functions and characteristics of hearing aids with respect to speech reception and discrimination.

SpH 640 Theories of Hearing

2 s.h.

An intensive review of the neurophysiology of the auditory system; the cochlea as a sound analyzer; pathways from cochlea to cerebral cortex; experimental studies on the auditory systems of animals and electrical potentials of nerve action.

D. Advanced Clinical Practicum**SpH 561 Advanced Clinic Practicum I**

2-3 s.h.

Supervised clinical practice with children and/or adults exhibiting functional or organic speech and hearing problems of varying degrees of severity; diagnosis of problems and acceptance of responsibility for planning complete programs of habilitation, stressing the speech and language area. Interviewing, counseling and report writing will be included. Two clock hours per credit.

SpH 663 Advanced Clinic Practicum II

2-3 s.h.

Students will be expected to assume full responsibility for interviewing, diagnosing, counseling, planning a program of either individual or group therapy and implementing it for persons exhibiting either functional or organic speech or hearing problems of a moderately severe nature. Reports will be required, but actual supervision should be held to a minimum. Two clock hours per semester hour.

PHILOSOPHY

Robert M. Hermann, Chairman

Graduate courses in Philosophy are primarily designed to provide elective study in an unfamiliar discipline for students teaching in the public schools. No graduate degree in Philosophy is offered. Degrees toward which credit in these courses may be used are indicated in the curriculum requirements sections of the catalog. Research or thesis work may be done in Philosophy with approval of the student's major program advisor.

Phil 581 Problems in Logic**2 s.h.**

An analysis of problems in meaning, of the formal structure of arguments, and of empirical inquiry-semantics, syntactics, and empirics. Fallacy. (Staff)

Phil 582 Problems of Ethics**2 s.h.**

The rational justification of moral judgements. Analysis of the function and meaning of moral language. (Staff)

Phil 583 American Philosophic Thought**2 s.h.**

A study of the more influential and original philosophies developed in America from the colonial period to the present. (Staff)

Phil 584 Philosophy Seminar**2 s.h.**

Area research in the discipline, considering various facets of a central problem. Students doing a thesis or research project in Philosophy will register for this course. (Staff)

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GRADUATE SCHOOL BULLETIN

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INDIANA, PENNSYLVANIA**

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